

**Central Banking as “Fluid Dynamics”:
A Comparative Study of English and Japanese Metaphors of Money**

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This paper reports on a preliminary corpus-based comparative study of metaphors in English and Japanese in the domain of “monetary policy” by central banks. In particular, the study examines how the notion of money is conceptualized in the two different languages through various metaphors. The underlying framework adopted for the study is Conceptual Metaphor Theory, one of the theoretical linchpins of Cognitive Linguistics widely employed to examine how figurative use of language reflects the metaphorical nature of the human conceptual structure. Using small corpora garnered in the print media, the study shows how central banking is conceptualized as “fluid dynamics” in metaphorical terms, both in English and Japanese, but also investigates some salient differences in the surface realizations of such conceptual metaphors of money between the two languages.

The world of economics, including central banking, and its representation by the media, is shot through with metaphors, a process so entrenched in our conceptualization of the world that it is sometimes hard to discern metaphorical representations pervading our daily lives. Indeed, without recourse to metaphorical thinking and understanding, a plethora of economic concepts, many of which are fundamental to our day-to-day activities, will be consigned to the arcana of economics. When the media talk about national economies of the world and financial markets across the globe, recondite technical terms are usually kept to a minimum. Yet, the media succeed, albeit to varying degrees, in reporting intelligibly economic phenomena to laypeople and in explaining what is happening to their economy. Here, it is assumed, metaphors play a significant role, because we do seem to conceptualize such abstract and complex ideas as interest rates and credit tightening through metaphorical extension from the realm of basic, concrete, and mostly physical experiences, such as touching and eating. This paper is an attempt to identify some of the most prevalent metaphors used in the domain of central banking and how such metaphors are motivated systematically by certain “conceptual metaphors,” a concept first enunciated by Lakoff and Johnson (1980).

The main aim of this paper is to examine how the domain of central banking is conceptualized systematically in English and Japanese, respectively, by detecting systematic patterns of metaphorical expressions in news reports about central bank policies in the print media. Crucial here is the methodological belief that linguistic evidence provides some clues about the inner workings of the human cognitive system because language is a direct reflection of the human mind, a belief widely shared by the growing community of cognitive linguists. There has been a marked increase in the number of similar comparative inquiries in the use of metaphor in business and economics from the perspectives of English for Specific Purposes, particularly between English and European languages, such as Spanish (e.g., Charteris-Black & Ennis, 2001; Littlemore, 2002; White, 2003), French (Boers & Demecheler, 2001) and Belgian (Boers, 2000). However, very few studies have been conducted to date to investigate the differences and similarities between English and Japanese in the distribution of metaphoric expressions and their underlying conceptual metaphors in economic discourse (See Fukuda, 2009 for an exception). This study is a modest attempt to contribute to narrowing this gap, with the understanding that mastery of English, the *de facto lingua franca*

in the world of business, and its rich metaphorical expanses, is of increasing importance for many Japanese students aspiring to become international businesspersons.

In the next part of the paper, a review of the literature is conducted to help elucidate how the mechanism of metaphor works in the human cognitive system. A brief overview of some traditional views of metaphor is followed by a more detailed examination of some of the findings by prominent cognitive linguists, including Lakoff, Johnson, and Grady, with particular reference to the notions of conceptual metaphor and primary metaphor. In the following section, a preliminary comparative case study of metaphors in the domain of central banking will be presented with special focus on variants of one conceptual metaphor (MONEY IS MATTER), using examples selected from the English and Japanese datasets of print media reports on central bank policies compiled for the study. The paper concludes by exploring some pedagogical implications of the study and suggesting some ideas for further research.

Review of the Literature

Traditional Views of Metaphor

In most metaphor studies, it is almost de rigueur to refer to Aristotle's cogitations on figurative language as the first serious scholarly foray into the as yet mystified mechanism of metaphor. This is not simply due to the need for chronological treatment of the subject, but it is also because Aristotle's views have been so influential and widely accepted, albeit to varying degrees, in both traditional and contemporary discussions of metaphor interpretation (Gibbs, 1994, p. 210). Aristotle treats comparison as the most fundamental process underlying metaphor comprehension and production, a position known as the "comparison view," which asserts, according to Searle (1993), that "metaphorical utterances involve a *comparison* or *similarity* between two or more *objects*" (p. 90; emphasis original). In other words, metaphor serves to compare certain features of two objects that are deemed intrinsically similar. For example, speaking of evening as "the old age of the day" is comparing the cyclical terminality feature of the planetary diurnal motion and the human biological system. Aristotle's metaphor theory contains three important premises prevalent in traditional views of metaphor: (1) metaphor is a matter of words because metaphoric transfer takes place at the level of words, not sentences; (2) metaphor is viewed as deviant from literal usage because it involves the transfer of a name to some object to which that name does not properly belong; (3) metaphor is based on similarities between two things (Gibbs, 1994, p. 210). These ideas have relegated metaphor research to the realm of poetic and literary language in the background of synchronic linguistics, giving rise to the widespread folk belief that metaphor is a linguistic anomaly, or a verbal ornament at best, that deviates from everyday literal language.

At one extreme end of this tradition are theorists like Searle (1993) and Sadock (1993), who believe that all nonliteral speech, including metaphor, "falls outside the domain of synchronic linguistics" because "the basis of metaphor is a kind of indirection that is shared with nonlanguage behavior" (Sadock, 1993, p. 42). For them, linguistic metaphors are phenomena that need to be interpreted indirectly through a series of pragmatic inferences in relation to a listener's/reader's understanding of context. Searle (1993) postulates eight pragmatic principles considered to be in operation for arriving at a metaphorical interpretation of an utterance. Although those principles are not meant to be exhaustive, it is evident that he assumes that metaphor comprehension requires extra inferential effort. In a similar yet alternative view to this Gricean "standard pragmatics model," Sperber & Wilson (1991) argue, within their relevance theoretic framework, that metaphor is a version of loose talk, which differs from literal talk "not in kind but only in degree of looseness" (p. 540). One is talking loose, for instance, when he or she says "20 dollars" in answer to a question about the price of a book, which is in fact 19.85 dollars. In this view, metaphorical utterances are one means of optimizing relevance in verbal communication by generating adequate contextual effects with

minimal processing effort. While special cognitive processes are not assumed here, unlike the standard pragmatics model, weaker implicatures speakers intend to communicate do require extra processing effort for listeners/readers to recover (Gibbs, 1994, p. 232). There may be cases, for example, in which it is optimally relevant for a mother to say “You are a piglet” to a child, instead of saying “You are dirty but still endearing,” because it invites the listener to explore a wide range of relatively weak contextual implications (e.g. “still endearing”) that cannot be conveyed by the latter, more direct statement (an example from Sperber & Wilson, 1991, p. 548). This requires some extra processing effort but it is offset by the resultant contextual effects unachievable by the latter statement. In this regard, the relevance theoretic view remains in the Aristotelian tradition of metaphor theories that regard figurative language as a deviation from a literal norm that requires extra cognitive processing (Aristotle’s second premise).

These traditional views of metaphor, however, faced a formidable challenge when Lakoff and Johnson (1980) propounded an antipodally different paradigm of metaphor theory in their seminal book, *Metaphors We Live By*, refuting almost every point of the traditional metaphor theories from the broader perspective of cognition and language.

Cognitive Linguistic View of Metaphor

Background. Lakoff, Johnson and their associates significantly expanded the range of phenomena that can be subsumed under the heading of metaphor. Instead of treating metaphor as a special, or even anomalous, linguistic mechanism for producing novel expressions, they declare that metaphor is ubiquitous in everyday life, not just in language but in thought and action as well, and that our conceptual system is metaphorically structured. To wit, “the locus of metaphor is not in language at all, but in the way we conceptualize one mental domain in terms of another. The general theory of metaphor is given by characterizing such cross-domain mappings” (Lakoff, 1993, p. 203). In this view, therefore, metaphorical expressions are surface realizations of the cognitive apparatus of metaphor employed to conceptualize the whole gamut of phenomena through understanding of particular domains (target domains) in terms of others (source domains). This allows us to explain systematic patterns of metaphorical expressions observable not only in poetic and literary works but also in everyday language.

In short, the way we speak about our lives is here assumed to reflect the way we conceptualize our experiences metaphorically. This has significant implications for linguistic analyses of metaphorical expressions because it means, if supported by empirical data, that the patterns we find in the use of metaphorical language can reveal important aspects of the way our mind is structured. The theoretical position of Lakoff, Johnson, and their associates thus yields counterpoints to each of Aristotle’s three premises: (1) metaphor is not a matter of words because it is fundamental to the way our mind is structured and can be realized in a variety of linguistic units; (2) metaphor is not viewed as deviant from literal language usage because the way our mind is structured is not inherently literal but rather broadly metaphorical; (3) metaphor is not contingent on intrinsic one-to-one similarities of two objects, but rather a set of systematic mappings between source and target domains. Lakoff and Johnson (1980, 1999) and other like-minded scholars argue that such metaphorical extensions between conceptual domains stem not from any inherent cross-domain similarities, but from what they call “experiential bases”—recurring experiences in the physical world that provide the basis for correlations between particular sets of experiential domains (e.g., between “quantity” and “height”).

Conceptual metaphor. Central to Lakoff and Johnson’s framework of metaphor theory is the notion of conceptual metaphor, which is a stable set of conventional cross-domain mappings available in long-term memory. Conceptual metaphors are conventional because they are clusters of mappings between different experiential domains that result from correlations

formed between recurring bodily experiences and other areas of human experience (i.e., experiential basis) in concert with our everyday knowledge of those domains. For instance, the target domain of love is understood in terms of the source domain of journey through the LOVE IS A JOURNEY metaphor (e.g., “Look how far we’ve come,” “We’re at a crossroads,” “We’ll just have to go our separate ways,” “We can’t turn back now,” “I don’t think this relationship is going anywhere,” etc.) (Lakoff & Johnson, 1980, pp. 44-45). In this example, some source-target mappings can be identified as follows: the travelers \Rightarrow the lovers; the vehicle \Rightarrow the love relationship itself; the journey \Rightarrow events in the relationship; the distance covered \Rightarrow the process made; the obstacles encountered \Rightarrow the difficulties experienced; decisions about which way to go \Rightarrow choices about what to do; the destination of the journey \Rightarrow the goal(s) of the relationship (Kövecses, 2010, p. 9). Notice that although these conceptual mappings motivate particular linguistic expressions, they do not represent one-to-one correspondences between words or phrases.

While conceptual metaphor holds great explanatory power for systematic patterns of metaphorical expressions in discourse, it does not warrant mappings of just any elements in the source domain onto any elements the target domain. In other words, not everything that is part of our knowledge of a particular source domain gets mapped onto the target domain. One general principle of constraints on cross-domain mappings, proposed first by Lakoff (1990) to explain this restricted nature of conceptual mappings, is the *Invariance Hypothesis*. Under this hypothesis, metaphorical mappings preserve the cognitive typology (i.e., the image-schema structure) of the source domain, in a way consistent with the inherent structure of the target domain (Lakoff, 1993, p. 215). Image-schemas are skeletal patterns that recur in our sensory and motor experience (e.g., motion along a path, bounded interior, balance, symmetry, etc.) (Turner, 1996, p. 16). Therefore, source domain interiors, for instance, correspond to target domain interiors but not to target domain exteriors (a topological mismatch). A corollary of this principle is what Lakoff calls “target domain overrides” (1993, p. 216), which means that image-schema structure inherent in the target domain cannot be violated in conceptual mappings. In the famous ARGUMENT IS WAR metaphor, certain components in our knowledge of the source domain, such as reparations, are not conventionally mapped onto the target since the inherent image-schema structure of the target domain does not have elements that topologically correspond to those source domain components.

While the Invariance Principle and the target domain override explain well why certain elements of the source domain, but not others, are projected onto the target domain, there are cases in which they fail to account for the partial nature of mappings. In an attempt to bridge this gap, Grady (1997a, 1997b, 1999, and Grady et al., 1996) proposed the notion of *primary metaphor*.

Primary and complex metaphors. Consider one of the most extensively debated conceptual metaphors in the literature, “THEORIES ARE BUILDINGS,” which motivates such linguistic expressions as “the *foundation* of a theory,” “the *framework* of a theory,” “facts *solid* enough to *support* the hypotheses,” “a *shaky* argument,” “the theory *caved in* under the weight of scrutiny,” etc. A set of conventional mappings seems to be sanctioned by the conceptual metaphor to yield a number of metaphorical expressions in accordance with the Invariance Hypothesis. Grady (1997a), however, pointed to some “illegitimate” mappings that may theoretically happen but do not actually occur, and gave the following examples (p. 40):

- (1) a. ?This theory has French windows.
- b. ?The tenants of her theory are behind in their rent.

These are both not readily interpretable, at least without some contexts that might justify these metaphorical entailments. As Grady points out, windows, tenants, and rent are salient elements in the experiential domain of buildings, yet they lack any clear counterparts in the domain of theories. There are many other salient features and functions of buildings that

similarly do not participate in our conventional metaphorical understanding of theories, including doors, floors, shelter, locus of activity. Why is this the case? Grady (1997a) claims that it is because mappings involved in this particular conceptual metaphor are the result of an interaction between independent processes of conceptualization. In other words, the THEORIES ARE BUILDINGS metaphor is decomposable into more basic, independent metaphoric structures (i.e., *primary metaphors*). In this example, Grady (1997a) suggests two primary metaphors: ABSTRACT ORGANIZATION IS PHYSICAL STRUCTURE AND VIABILITY IS ERECTNESS (p. 45). The former yield such expressions as “the theoretical foundation” and “empirical support” in conceptualizing the domain of theories, while the latter induces such expressions as “shaky arguments” and “his hypothesis collapsed.” Notice that the combined version, VIABLE ORGANIZATION IS ERECT PHYSICAL STRUCTURE, sanctions only a limited set of conventional mappings that involve elements like “framework,” but not mappings that contain elements like “tenants” and “windows.” Grady (1997a, b) believes that the THEORIES ARE BUILDINGS metaphor, therefore, is a *complex metaphor* composed of these two primary metaphors. Moreover, metaphors are primary only when they are based directly on cognitive (possibly neural) correlations that arise through recurring everyday experiences between our sensorimotor perceptions and other domains of our lives (e.g., “EXISTENCE IS VISIBILITY,” “ACTIVITY IS LIFE,” etc.) (Grady, 1997a). Other metaphors are compounds derivable from such primary metaphors through unification. This kind of metaphor “factorization” is extremely useful in analyzing how certain metaphorical expressions are motivated. Primary metaphors are directly motivated by basic cognitive correlations formed between sensorimotor perceptions and other areas of human cognition through recurring everyday experiences (e.g., seeing the level of water go up in a container as more water is poured). This most basic level of conceptualization, a level Lakoff & Johnson (1999) called “the cognitive unconscious” (p. 10), affords primary metaphors a broad scope of application to a variety of phenomena when we understand certain domains in terms of others. A multiple of primary metaphors can coalesce into a more domain-specific conceptual metaphor (i.e., complex metaphor), as has been observed with the THEORIES ARE BUILDINGS metaphor. There seem to be some prototypical domains associated with some compounds of certain primary metaphors (Lakoff, 1987, Chs. 2,3). For example, when the PROGRESS IS MOTION ALONG A PATH primary metaphor is invoked, it often combines with other primary metaphors to yield such domain-specific conceptual metaphors as “LIFE IS A JOURNEY.” Also at work here is our knowledge of such domains, which enables speakers and writers to produce creative metaphorical entailments through the use of extended meanings. It is worth mentioning that when certain conceptual metaphor license their surface manifestations at the linguistic level, prototype effects again seem to set in, prompting certain cross-domain mappings to be realized by particular categories of things or events. In the LIFE IS A JOURNEY metaphor, for example, the mapping from “the relationship” to “the vehicle” (domain-specific) invites the use of cars, vessels, and other prototypical members of the category of vehicle. This is compatible with Lakoff’s (1993) observation that conceptual mappings generally occur at the superordinate level, and not at the basic level of categorization (e.g. “vehicle” → “relationship,” instead of “car” → “relationship”) (pp. 211-212). It should also be noted that the way conceptual mappings license the use of particular lexical items is affected by the sociocultural and rhetorical contexts in which specific utterances are situated, although this area of theoretical investigation is beyond the scope of this paper.

The next section observes how this overall mechanism of conceptual metaphor is exploited to conceptualize the specific domain of central banking in English and Japanese through a preliminary case study using examples selected from English and Japanese datasets of print media reports on central banks. A brief comparative analysis will follow in an attempt to elucidate some salient aspects of the apparent similarities and differences between the two languages with regard to conceptual metaphor.

Metaphors in the Domain of Central Banking

According to McCloskey (1994), the field of economics, like other arts and sciences, uses “the whole rhetorical tetrad,” i.e. the facts, logics, metaphors, and stories necessary for completed human reasoning (p. 62). It stands to reason, therefore, that by delving into particular corners of the vast universe of economics (e.g. central banking) in quest for systematic use of metaphorical expressions, we can seek to reveal some unknown facets of human reasoning processes, and by extension, of human cognition. In this vein, Bores and Demecheleer (1997) identified three general, conventional metaphorical models deeply associated with the domain of economics (the PATH metaphor, the HEALTH metaphor, and the WAR metaphor) to shed new light upon the prototypical western economic discourse advocating a free-market ideology (p. 118). The case study below is also an attempt along these lines of premises. It describes some of the primary and conceptual metaphors that seem to be prevalent in the domain of central banking, to illuminate how this particular domain is conceptualized in English and Japanese.

In order to examine systematic patterns of metaphorical expressions in the domain of central banking, a total of 205 Japanese-language articles (about 108,000 characters) in the print media were collected through the online archive of Jiji Press for a one-year period through November 20, 2003, a period chosen mainly for reasons of availability. The search words used in Japanese were “*nichigin* (the Bank of Japan),” “*kinyu-seisaku* (monetary policy),” and “*shikin* (funds).” A comparable corpus of English-language articles (60 articles, with about 167,000 words) was also compiled for the same period, using the LexisNexis Academic Database, using equivalent search words (“Bank of Japan,” “monetary policy,” and “funds”). These words, and their Japanese counterparts, were selected for the purpose of controlling for topical variation in the stories to be included in the two corpora so that a meaningful, if not direct, comparison between the two datasets can be made. The two corpora were carefully combed by the author for relevant metaphorical expressions and the number of occurrences of each expression was counted.

Major Roles of Central Banks

In general, the major role of a nation’s central bank is four-fold: (a) to conduct the nation’s monetary policy by influencing money and credit conditions in the economy in pursuit of full employment and stable prices; (b) to promote the stability of the financial system; (c) to provide banking services to depository institutions and to the federal government; and (d) to ensure that consumers receive adequate information and fair treatment in their interactions with the banking system (the official website of the Board of Governors of the U.S. Federal Reserve System).

Of these, the most salient, at least in today’s contexts of money and finance, is the role of controlling national credit conditions through monetary policy management, an observation well documented in the English-language print media. Although many things related to central banks may be abstruse to people uninitiated to the contemporary macroeconomic theories, the U.S. Federal Reserve’s decisions on interest rates, for instance, command a certain degree of media and public attention. This is because a decision by a major nation’s central bank to alter or maintain interest rates could have an enormous impact not only on national and global economies at large, but also on various facets of our everyday life, from credit card interest rates to mortgage loan rates. Therefore, it should be useful to observe what kinds of metaphorical models are commonly invoked in the media to represent this phase of central banking, namely, monetary policy.

Money as Matter

Since central banks primarily regulate the aggregate money supply in carrying out their

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monetary policy in order to influence (and practically control) interest rates, it would be useful to see how the notion of money itself is conceptualized in the domain of economics.

O'Connor (1995, 1998) investigated how the domain of money and finance is frequently represented in Spanish by terms drawn from the semantic fields of the three states of matter: solid, liquid, and gas. Based on her meticulous componential analysis of semantic features for each of the three states, O'Connor suggested that many of the money metaphors in Spanish that arise from the liquid semantic field relate to liquid's [+fluid] property, which is central to the corresponding concept of transfer of ownership in the domain of money and finance (1998, p. 145). This observation seems to hold true in both English and Japanese as well, given such expressions as "flow of money / okane no nagare (money flow)" and "liquidity / ryudosei" (which both in English and Japanese is a technical term to mean the immediate availability of money). There are copious such examples in the compiled corpora of news reports on central banks in English and Japanese and the following are a few of those examples in English:

(2) "Japan is the most indebted country in the world," he huffs, explaining how money is **sucked in** via the post office only to be squandered. "We have to stop **pouring away** money like this. We have to **turn the tap off**."

(*Financial Times*, November 15, 2003)

(3) At a time when US fiscal deficits are spiraling out of control because of the Iraq war, while mortgage rates are already rising sharply, it would be utter folly for the Bush Administration to take any action that might restrain this **deluge** of Asian lending.

(*The Times*, September 9, 2003)

(4) He (Japanese Prime Minister Junichi Koizumi) promised to slash the public works budget, which previous governments had used to **funnel** funds **into** depressed communities as Japan's budget deficit soared.

(*Washington Post*, September 2, 2003)

Notice here that, in (4), the conceptualization of money as liquid invites the mapping between the entity that owns money and some kind of container that holds liquid, wherein the <money as liquid> is <funneled into> the depressed communities as <a container>. This is quite natural since one of the salient properties of the liquid state is that it adapts to the shape of the container that holds it because liquid itself has no intrinsic shape. It is compatible with the fact that liquid metaphors correspond to one of three basic container concepts: liquid may run along a course; it may be contained in an enclosed area; or it may originate from a single point (O'Connor, 1998, p. 146). It deserves mention that the CONTAINER metaphor as applied to liquid often involves metonymic transfers of meaning where, for example, the place in which the event occurs stands for the event itself (*ibid*, p. 146). Of particular relevance to the present case study here is that markets (itself a metaphorical expression) are conventionally conceptualized as containers that hold money as liquid and that in every day speech such markets often stand metonymically for (the value of) the money. Therefore, news reports about stock markets would rarely say, "The value of the stock market fell sharply today," but usually start with something along the lines of "The stock market fell sharply today".

Another observation by O'Connor (1998) that warrants special attention is that "financial metaphors that are drawn from the liquid domain correspond more than anything to the movement of liquid" (p. 145). Therefore, she says, slow movement, or the movement of a small quantity of liquid, "logically" corresponds to the transfer of a small quantity of money. This correspondence allows a rich source of verbs that denote some movement to be used for conceptualizing the amount of money in transfer. There is one example from the corpus of the present case study:

(5) Instead, the banking sector has carried on **trickling out** money to companies that should have folded; the government has kept the banks alive; and the economy has been kept above water with huge fiscal injections.

Here, the small amount of liquid associated with the verb *trickle* is metaphorically extended to the domain of money, where it is taken to mean the small amount of money transferred.

These observations related to the MONEY IS LIQUID metaphor are very useful, but there is an alternative, possibly more elegant, explanation of how particular properties in the domain of liquids are mapped onto the domain of money, using the notion of primary metaphor delineated in the preceding chapter of the paper. It is debatable whether it is productive to analyze such an intuitively transparent metaphor as MONEY IS LIQUID by decomposing it into some primary metaphors. I am inclined to say it is productive, because it shifts the focus from general mappings to primitive metaphors that are directly motivated by our physical sensorimotor experiences, thereby further clarifying the experiential bases of the conceptual metaphor. It should be noted that the domain of money has no intrinsic features that can be inherently linked to the domain of liquid.

Based on Grady's (1997 a, b) framework, I suggest the following three metaphors as primary metaphors that constitute the complex metaphor, MONEY IS LIQUID:

- (6) [EASE OF CHANGE] IS [FLUIDITY]
- (7) [CHANGE OF OWNERSHIP] IS [MOVEMENT]
- (8) [ABSTRACT VALUE] IS [PHYSICAL MATTER]

The experiential basis of (6) is that we come to form correlations between the fluidity of water and other liquids and the ease with which things change because we observe recurrently that liquids cannot hold themselves and always in a state of flux unless contained in an enclosed area. Likewise, correlations develop between the two domains for (7) after recurring experiences in which entities physically move when their ownership are transferred from one person to another. Primary metaphor (8) corresponds to what Lakoff and Johnson (1980) referred to as "ontological metaphor." It is easy to see that these primary metaphors operate independently from each other when we think of such examples as "a flow of information," "a flow of people," "a flow of conversation" and "a flow of electricity." The resulting combined complex metaphor would be:

- (9) [EASE OF CHANGE OF OWNERSHIP OF ABSTRACT VALUE] IS
[FLUID MOVEMENT OF PHYSICAL MATTER]

This accounts for why only certain aspects of the source domain of liquid are mapped onto the target domain of money. For instance, the CHANGE OF OWNERSHIP IS MOVEMENT metaphor invites attention only to aspects related to physical movement and not others, thereby licensing the use of such verbs as *trickle* to represent the manner in which money is transferred from one party to another. Moreover, the ABSTRACT VALUE IS PHYSICAL MATTER offers motivation for cases in which places or institutions where money is parked are conceptualized as (prototypical) physical containers, but not as some porous structure.

Central Banking as Fluid Dynamics

If money is conceptualized as liquid when transfer of ownership is one of the focal meanings of the event described, it stands to reason that central banks' operations are conceived as phenomena in the domain of fluid dynamics, which is the scientific study of the forces acting on liquids and gases and the resulting movements of these fluids. What central banks (where the notion of "central" correlated with the idea of "importance") do in reality in their monetary policy management is to adjust the money supply in the economic system mainly through their money market operations (e.g., buying and selling government securities from the money market to fine-tune the total amount of money available in the financial

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system). Some of the mappings that are to be sanctioned by the MONEY IS LIQUID metaphor would be along the lines of the following:

(10)	liquid	⇒	money
	container	⇒	market
	circulation	⇒	a series of transactions
	movement in pipes	⇒	transaction between plural parties
	friction (resistance)	⇒	interest rates
	amount of flow	⇒	sum of money

In this conceptual metaphor, central banks manifest themselves as some kind of controller of the circulation of liquid in a hydraulic system, tightening or loosening the valve to regulate the flow of liquid moving through some bounded space. Since markets are conceptualized as some sorts of containers, our knowledge of the domain of fluid dynamics induces us to conceive of transactions between investors in various markets as the movements between containers, a scenario which calls for the invocation of another element to form a network of containers in which liquid circulate—namely, pipes (or conduits). This structure corresponds to what Reddy (1993) called the “conduit metaphor” (p. 166), a powerful conceptual metaphor that permeates our common understanding of human communication, at least among those in Western cultures, with thoughts and opinions viewed as being conveyed through conduits from one person to another. To be sure, when the Bank of Japan decided to guide its short-term interest rate target lower from 0.25% to virtually zero in February 1999 by massive purchases of securities, an extraordinary phenomenon which came to be known as “the zero interest rate policy,” the print media used a number of lexical items drawn from the domain of fluid dynamics, such as “opening the money spigots”, “infusing liquidity into the market,” and “tanki-shijo-o shikin-de jabujabuni-suru” (“render the money market awash with funds”). These expressions were apparently licensed by the underlying conceptual metaphor, “CENTRAL BANKING AS FLUID DYNAMICS” (as well as “MONEY IS LIQUID).

A Preliminary Comparative Study on Metaphors of Money in English and Japanese

Money in English

The English dataset consisting of approximately 167,000 words yielded a cluster of metaphorical expressions apparently sanctioned by metaphorical extension of meaning from the domain of physical matter (liquid, solid, and gas) to the domain of central banking as they relate to some state of money. Due mainly to the limited size of the corpus, there were many cases in which only one or two instances of particular metaphorical expressions were identified. The list of metaphorical expressions found in the corpus is presented in Table 1, with the number of occurrences indicated in the rightmost column. It should be noted that this list is in no sense a comprehensive inventory of metaphorical expressions used in press reports about central banking, but it should give us a rough indication of the possible range of such expressions in (written) economic discourse.

Table 1.
Frequency of metaphorical expressions based on MONEY IS MATTER in English

Metaphor	Lexis	No.
MONEY IS LIQUID	(credit) easing	43
	liquidity	26
	(fund) injections / inject (funds into...)	13
	current (account)	12
	pump (money into ...)	11
	flood (the financial system with cash)	9
	loose / loosen (monetary policy)	6
	(cash) flow	6
	(cash) in circulation	3
	draw (money from ...)	2
	(fund) inflows	2
	funnel (money into ...)	2
	a channel (for funds)	2
	(monetary) tightening	2
	trickle out (money to)	1
	open (monetary and fiscal) taps	1
	(capital) outflows	1
	flush with (cash)	1
	deluge of Asian lending	1
	recycle (funds into the economy)	1
	(capital) draining (out of the U.S.)	1
MONEY IS SOLID	the burden (of debts)	9
	erode / erosion (of assets)	6
	clean up (the banking system)	6
	trim (debt)	3
	slash (debt)	2
	bad assets	2
	prune (debt)	1
MONEY IS GAS	ignite (inflation)	3
	spark (inflation)	3
	volatile (markets)	2
	(funds) dry up	1

It is no surprise that, given the nature of the phenomena covered in these reports (i.e., monetary policy-making by a central bank), the MONEY IS LIQUID metaphor prevails in the corpus, since the central bank's central concern is to control the aggregate of money supply in the economy, or in other words, "the level of immediate availability of liquidity." This notion of liquidity has become so entrenched in the field of economics that few people may sense any degree of metaphoricity in the expression itself, but it should nevertheless be stressed that the abstract notion of fund availability and the physical state of LIQUID have no direct conceptual correspondence.

I have classified such expressions as "easing," "tightening," "loose," and "pump" under the MONEY IS LIQUID heading as they seem to pertain coherently to the broader configuration of CENTRAL BANKING AS FLUID DYNAMICS. Let us see some of the specific examples obtained from the corpus.

(11) At the previous policy board meeting, the bank raised the maximum level of the

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liquidity target by 2 trillion yen (\$18 billion) from 30 trillion yen (\$276 billion). **Flooding** the system **with** cash helps lift the economy by making it easier for commercial banks to dole out loans to companies.

- (12) The bank's forecast for deflation means the central bank will likely maintain its current monetary policy that keeps short-term interest rates at near zero and keeps the financial system **flush with** cash.

(Associated Press, November 1, 2003)

- (13) Analysts also criticized the government for not doing enough to reinforce the current recovery. Some say the Bank of Japan should more aggressively **pump** money **into** the economy until it **ignites** inflation. Instead, the central bank has moved only incrementally and refused to adopt an inflation target.

(The New York Times, September 10, 2003)

- (14) Separately, financial regulators said that they would study a proposal to permit the government to **inject** public money **into** struggling banks without waiting for them to formally declare that they are short of capital.

(The New York Times, May 21, 2003)

- (15) The Bank of Japan decided Wednesday to further **ease** its monetary **grip** to better cope with uncertainties over the world economy and slumping Tokyo stock prices, especially those of banks.

(Kyodo News, May 1, 2003)

- (16) Japan, for its part, has been hoping to see Bush reconfirm his strong-dollar policy to stop Japanese capital from **draining out of** the United States in the event the dollar weakens further.

(The Daily Yomiuri, October 15, 2003)

All of these examples, except “ignite” in (14), evoke the physical domains of liquid and some sort of hydraulic system controlling the flow of such liquid. Therefore, if the financial system is “flooded” or “flush” with cash or funds or if funds are “pumped” or “injected” in the system, the implication is that it will stimulate the circulation of money as liquid in the system, thereby catalyzing economic activity in the nation. If the “grip” on the valve is relaxed or “eased”, it will also promote the fund circulation by reducing the existing obstruction in cash flow (i.e., interest rates as “friction”). It is worth noting here that in the complex metaphor proposed in 3.2, [EASE OF CHANGE OF OWNERSHIP OF ABSTRACT VALUE] IS [FLUID MOVEMENT OF PHYSICAL MATTER], the domain of liquid is recruited as a prototypical instantiation of such conceptualization and that it accounts for the systematicity found in the examples cited above and others. When liquid is transferred, some type of container is usually presupposed, which in economic discourse is understood as a market or some system or institution where financial transactions are conducted. When capital “drains out of the United States”, therefore, a series of transfers of funds are taking place from the U.S. financial markets in large quantities.

Although the MONEY IS SOLID and MONEY IS GAS metaphors are less prominent in the domain of central banking, there were instances in which these metaphors seemed to have been linguistically realized, as can be seen in (17) and (18):

- (17) Policy makers are also eager to cap the yen's recent surge against the dollar, which **erodes** the profits of exporters.

(The New York Times, October 31, 2003)

- (18) The Japanese intervention has given the Treasury market reassurance that the foreign buying isn't going to **dry up**.

The physical state of SOLID characterizes an entity that has a three-dimensional proper shape with certain mass intrinsic to it and as such resists division (O'Connor, 1998, pp. 142-143). It seems reasonable to think, then, that these aspects of solid are mapped metaphorically onto the domain of money to signify something like “quantities of money that tend to amass in a stable state.” Such “mass” of money in turn would imply some concomitant weight, a conceptualization that probably accounts for the relatively high frequency of the word “burden” in the corpus in describing “debts,” which tend to accrue over time unless they are “cut” or “slashed.” In (17), therefore, the “profits” are conceived of as some fixed amount of solid that is exposed to erosion, a process of being eaten or worn away by slow destruction of substance. The state of gas, on the other hand, exhibits the property of “uniform dispersion into any container into which it is placed” (O'Connor, 1998, p. 148) and as such it denotes the notion of “uncontainability,” which seems to capture the elusive aspects of money when it defies stable ownership in certain circumstances. Therefore, when money (or some activity that assumes its transfer) “dries up,” as in (17), it describes a situation in which money can no longer be contained in a bounded space and is thus “lost” (*ibid.*). Expressions like “volatile” and “ignite (inflation)” seem to fit well with this mode of conceptualization as well.

Money in Japanese and Comparative Analysis

The notion of “finance” is usually expressed in Japanese with the word “kinyu,” which is represented by two Chinese characters (“金融”) in the Japanese writing system. The former character—“kin”—denotes “money” or “monetary”, while the second ideogram—“yu”—signifies the state of “melting,” or a change of state from SOLID to LIQUID. This alone suggests that the domain of (central bank) monetary policy is also conceptualized in terms of MATTER (in particular, LIQUID) in Japanese, and this intuition seems to be borne out by the data collected for the study. A list of metaphorical expressions germane to the domain of central banking is presented in Table 2 below.

Table 2.
Frequency of metaphorical expressions based on MONEY IS MATTER in Japanese

Metaphor	Lexis	English translation	No.
MONEY	(kinyu) kanwa	“(monetary) easing”	167
IS LIQUID	juntakuna (shikin)	“ample (funds)”	45
	(shikin) chunyu	“(fund) injection”	27
	(kaiire) waku	“(purchase) frame”(<container>)	24
	yushi	“loan” (<melting + funds>)	23
	(shikin-no) enkatsu(-ka)	(fund) smooth(-ing)	20
	ryudosei	“liquidity”	16
	(shikin) kyushu	“(fund) absorption”	15
	(shikin-no) yuzu	“lending(funds)” (<melting+path>)	7
	(shikin-no) ryutsu-ga) todokooru	“(fund circulation) stagnates”	6
	hikishime	“tightening”	6
	(shikin) ryunyu	“(fund) inflow/influx”	5
	age-cho	“excess scooping-up”	5
	(okane-no) nagare	“(money) flow”	5
	hippaku(-kan)	“tightened (sentiment)”	4
	(shikin) tonyu	“(fund) throw-in”	4
	(shikin) hosyutsu	“(fund) release”	2
yobimizu	“pump-priming”	2	
(shikin) junkan	“(fund) cycle”	2	

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	(shikin-ga) ikiwataru	“(funds) go around/spread”	2
	hakyu keiro	“spreading/ripple route”	2
	(shikin-o) nagasu	“flow (funds)”	2
	(shikin-no) tairyu	“(fund) stagnation”	2
	(shikin-ga) nagareru	“(funds) flow”	2
	(shikin-ga) soko-o-tsuku	“(funds) reach/hit bottom	1
	(shikin) ryunyu-ga hosoru	“(fund) flows become thin/narrow”	1
	(shikin-ga) afure-kaeru	“awash/overflowing with (funds)”	1
	(shikin-no) meguri (-ga warui)	“(find) circulation (is bad)”	1
	(shikin-ga) nagare-komu	“(funds) flow into ...”	1
	(shikin-no) dega-warui	“(funds) do not flow easily“	1
MONEY	(shikin-no) tsumi-age	“(fund) pile-up”	23
IS SOLID	(shikin-no) shoka	“(fund) digestion”	5
	(saimu-no) sakugen	“(debt) cut/slashing	5
	(kinyu-no) mezumari	“(financial) clog	2
	(shisan-ga) rekka-suru	“(assets) decay”	1
	(shikin-no) tsumitate	“pile-up”	1
MONEY	(shikin-ga) hiagaru	“(funds) dry up”	1
IS GAS			

A brief glance at the list reveals striking similarities between the English and Japanese datasets, with many Japanese metaphorical expressions having their close English counterparts, (e.g., “juntaku” → “ample,” “chunyu” → “inject,” “ryudosei” → “liquidity,” “kanwa” → “easing,” “hikishime” → “tightening,” “(shikin-no) nagare” → “(fund) flow,” “sakugen” → “cut/slashing,” “hiagaru” → “dry up,” etc.). Although it is true that many economic terms have been imported from the English-speaking cultures, these similarities strongly indicate that money and monetary policy are also conceptualized in Japanese by dint of the MONEY IS MATTER metaphor and the CENTRAL BANKING AS FLUID DYNAMICS metaphor. This finding may seem obvious given the very basic nature of these conceptual metaphors, which are grounded deeply in our sensorimotor experience. It should be stressed again, however, that the domain of MATTER (and its three states, LIQUID, SOLID, and GAS) has no inherent connection with the domains of finance and central banking. Now let us see some of the specific examples found in the Japanese corpus to get a better idea of how metaphorical expressions are licensed in economic discourse in Japanese. (These examples were all taken from the Jiji Press online news archive.)

(18) (Nichigin-wa) **juntakuna** shikin kyokyu-o tuzuke, keiki-o
The BOJ-TOP ample funds supply-ACC continue economy-ACC

saidaigen sasaeteiku kanngae-o kyocho-shita.
maximally support idea-ACC stress-ed

“The Bank of Japan stressed its determination to maximally support the economy by providing ample funds (to the financial system).” (November 13, 2003)

(19) Kokusai-tsuka-kikin (IMF)-wa kinyu-**kanwa**-no yukosei-o
IMF-NOM monetary-easing-GEN effectiveness-ACC

kyocho-shi, ginko-eno koteki-shikin-**chunyu**-o hajime
stress-es banks-into public-funds-injection-ACC not only

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zaisei-shishutsu-no fiscal-spending-GEN	juyosei-o importance-ACC	uttaete-iru appealing to-is
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“The IMF stresses the effectiveness of credit easing and underscores the importance of public fund injections but also of (additional) fiscal spending.” (May 19, 2003)

(20)	Kansetsu indirect	kinyu-no financing-GEN	seijoka-niha normalization-for	furyo-saiken bad loans	shori disposal	to and
	kajo-saimu-no excess-debt-GEN	sakugen-no cut-of	souhou-ga both-NOM	fukaketsu-da. indispensable		

“In order to normalize the indirect financing system, it is indispensable to dispose of bad loans and cut excess debts.” (October 24, 2003)

The underlying conceptual metaphors, MONEY IS LIQUID and MONEY IS SOLID, are palpable in these two sentences above, in close parallel to the English examples cited in the previous section. This of course does not mean that there is a perfect lexical match between the two languages when metaphorical expressions are sanctioned by common conceptual metaphors. For instance, expressions like “tairyu (stagnation)” and “enkatsuka (smoothing-out),” which are fairly common in Japanese economic discourse, seldom appear in English. Furthermore, when these conceptual metaphors are exploited more creatively, there seems to emerge wider variance between the two languages, as is illustrated by the following examples.

(21)	Tanki-kinyu-shijo-niwa tairyu -shiteori short-term money market-in	funds-NOM	shikin-ga slime-like	hedoro-no-yoni stagnating-is
	infure-kitai-ni inflation-expectations-to	musubitsuka-nai link-not		

“Funds are stuck in the money market like slime and the situation will lead to no inflationary expectations.” (February 27, 2003)

(22)	Kinyu monetary	seisaku-no policy-of	koka-no effects-GEN	hakyu-katei -o ripple-process-ACC	migaki-naosi polish-again
	paipu-no pipes-GEN	mezumari-o clogs-ACC	sojishi, clean up	kekkasekininn-o accountability-ACC	oeru-katachide shoulder
	motteiketara if possible	iito ideal	omou wish		

“It would be ideal if we could review the process of ensuring the effects of monetary policy and clean up any clogs (in the financial system) so that we can be held accountable for our decisions.” (March 18, 2003)

Although the two sentences above seem to exemplify linguistic manifestations of the overarching CENTRAL BANKING AS FLUID DYNAMICS metaphor, they differ markedly from English examples in that some state of money in the process of transfer between two “containers” (e.g., markets, companies, etc.) is foregrounded, with overt lexical items like “hedoro (slime)” and “mezumari (clog)” realized to depict the particular state of money

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within the “conduits” of the hydrodynamic system of finance. In English, by contrast, such transitional state of money does not seem to surface as specific lexical items, even though it is conceivable to find words like “clog” in economic discourse in English as well and it may very well mean that the present corpus was too small to detect such examples. But at least in the dataset examined here, there appears to be a tendency in English to focus on the resultant state of events (e.g. “clean up the financial system,” without invoking the explicit existence of obstructing elements) or the manner of (fund) movement (e.g. “trickle out,” without profiling the specific entity obstructing the flow of funds).

It also deserves mention that few instances of expressions extended from the domain of natural disasters are found in Japanese to describe transfer of large quantities of money, whereas words like “flood” and “deluge” seem to be frequently used in English. In particular, the verb “flood” was employed almost as frequently as “pump” in the corpus to portray the central bank’s steps to dramatically increase the level of liquidity in the financial system. The verb “pump” itself points to an interesting difference between English and Japanese in the selection of specific source domains to tap for metaphorical extension: According to *Random House Webster’s Advanced English Dictionary*, a “pump” is a device for raising, pushing in or out, or compressing fluids or gases, whereas no such specific instruments or related verbs were invoked in the Japanese corpus to describe money market adjustments by the central bank, with more general verbs like “chunyu (inject)” and “tonyu (throw in)” clearly favored. Another noticeable contrast between the two languages is that while lexical repetitions in intra- and inter-paragraph environments are usually eschewed in English texts, most likely for stylistic reasons, such repetitions are almost the norm in Japanese discourse, spoken or written. This seemingly pervasive tendency in Japanese explains the markedly high frequencies of a limited number of lexical items in the corpus, including “kanwa (easing),” “juntaku (ample),” and “chunyu (injection).” Possibly at work here, at least partly, is Japanese speakers’ culturally ingrained sensitivity to certain levels of register in written discourse, which discourages the use of more informal words like “jabujabu (awash)” and “ireru (put in).” If a corpus with data from less formal sources, such as weekly magazines and tabloids, or from spoken sources, is examined, it may yield a wider variety of vocabulary even in the domain of central banking.

Conclusion

In this paper I first reviewed preceding studies about how the process of metaphorical conceptualization is motivated and how it is central to our conceptual system, with particular attention to conceptual metaphor and primary metaphor. I also conducted a preliminary comparative study of metaphorical expressions in the domain of central banking in English and Japanese, using two datasets compiled for the study. I found that English and Japanese share many conceptual metaphors that are basic to the domain of monetary policy and identified many parallel linguistic manifestations licensed by such metaphors, in particular, MONEY IS MATTER, in the two languages. However, it has also been shown that surface realizations of similar underlying metaphors exhibit different tendencies and preferences with respect to source domains, foregrounding of particular aspects of events, and stylistic concerns. Instances exhibiting these differences are classified in Deignan (1999) as “type 2” situations in which the same conceptual metaphors sanction different linguistic expressions, as opposed to “type 1” situations in which the same conceptual metaphors with equivalent linguistic situations are found. Although various cases of both type 1 and type 2 situations were identified in the study, no instances were spotted of type 3 and type 4 situations (i.e. different underlying conceptual metaphors in the two languages, and similar literal meanings but different metaphorical meanings were observed). This observation dovetails with the findings of a similar comparative study of Spanish and English financial reporting by Charteris-Black & Ennis (2001).

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The results of the qualitative analysis may seem trivial given the largely overlapping distribution of underlying conceptual metaphors in the domain of central banking in the two languages, but they nevertheless have important implications for second language education, particularly in the context of English for Specific Purposes (ESP) (cf. Alejo, 2010; Fukuda, 2009; Holme, 2004, 2009). In the first place, the fact that the two languages share a set of crucial conceptual metaphors, such as MONEY IS MATTER and CENTRAL BANKING AS FLUID DYNAMICS, can be exploited effectively to promote positive transfer from L1 to L2 by raising learners' awareness of such metaphors. This will also help students avoid inappropriate recruitment of source domains in metaphor production (e.g. "to beam money to the bank" or "to hurl funds to the market") due to erroneous assumptions that English and Japanese should radically differ with regard to underlying conceptions of the domain. Secondly, language-specific differences in type 2 situations still have to be addressed in a principled manner despite the striking similarities in underlying metaphors, in order to inform learners of how to achieve appropriate realizations of such metaphors in the target language. Without this process, it will be difficult for learners to gain ready access to information concerning types of culturally prototypical instantiations of conceptual metaphors used to "frame" various aspects of our experience. Thirdly, comparative studies of metaphorical expressions between two or more languages could shed fresh light on how certain domains are conceptualized in those languages and how different cognitive schemas, if any, are employed to license certain conventional linguistic cues (see Kövecses, 2005, for more discussion).

Although the present study used a corpus-based approach to studying metaphors in economic discourse from naturally occurring "authentic" data, it has a number of limitations. Firstly, due to limited access to online news archives in Japanese, only one source was used to compile the Japanese dataset, as opposed to the English corpus collected from a wider range of publications. This discrepancy may possibly have skewed the results of the preliminary study. Furthermore, the inclusion of British, American, Australian, and Singaporean publications in the English corpus may have obscured unique tendencies for certain metaphorical conceptualizations salient in particular varieties of English.

For further research, it would be useful to continue contrastive studies of metaphor in English and Japanese in broader topical areas of finance with much larger parallel corpora that would allow more substantive quantitative analyses. Another line of inquiry worth pursuing would be to look at how ordinary people, instead of "experts" like journalists, conceptualize money and other basic economic concepts, preferably using naturally occurring spoken data. It would also be interesting to conduct experimental studies on how heightened awareness of basic conceptual metaphors in a specific domain (e.g., central banking) would affect L2 learners' production of native-like metaphorical expressions in spoken interactions and writing activities in the target language.

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The Daily Yomiuri (Tokyo)

The New York Times

The Times (London)

The Washington Post

(Japanese Dataset)

Jiji Press