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Surfing the money tides: Understanding the foreign exchange market through metaphors

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This study describes metaphorical conceptualizations of the foreign exchange market held by market participants and examines how these metaphors socially construct the financial market. Findings are based on 55 semi-structured interviews with senior foreign exchange experts at banks and at financial news providers in Europe. We analysed interview transcripts by metaphor analysis, a method based on cognitive linguistics. Results indicate that market participants' understanding of financial markets revolves around seven metaphors, namely the market as a bazaar, as a machine, as gambling, as sports, as war, as a living being and as an ocean. Each of these metaphors highlights and conceals certain aspects of the foreign exchange market and entails a different set of implications on crucial market dimensions, such as the role of other market participants and market predictability. A correspondence analysis supports our assumption that metaphorical thinking corresponds with implicit assumptions about market predictability. A comparison of deliberately generated and implicitly used metaphors reveals notable differences. In particular, implicit metaphors are predominantly organic rather than mechanical. In contrast to academic models, interactive and organic metaphors, and not the machine metaphor, dominate the market accounts of participants.

This article sheds new light on the institution of the foreign exchange market, the largest financial market worldwide, which establishes the values of national currencies with daily trading volumes of more than US\$1,200 billion (Bank for International Settlements, 2001). This market has no defined physical location but exists in a global network of computers, which allows huge amounts of money to be traded worldwide in split seconds. Trades are executed by foreign exchange traders acting on behalf of such market participants as central banks, investment banks or investment funds. The latest information technologies play a key role in these trades, since financial news services provide traders with a continuous deluge of real-time information about

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economic and political news which influences the value of currencies as well as the behaviour of other market participants.

We examine the foreign exchange market on a linguistic level, concentrating on participants' subjective experience of the market and on the role of metaphors in this experience. Our approach thus differs radically from models which conceptualize financial markets as objective phenomena and focus their analysis on deterministic laws or outcomes on a collective and averaged level (Maital, 1982). Such models fall short of recognizing that financial markets are 'social institutions, not physical phenomena (...) They serve to organize and guide human behavior through sanctions, mores, norms, status, and shared worldviews' (Harvey, 1993, p. 679). These worldviews are decisive, since economic decisions and market behaviour are 'a function of how people perceive the world', as economic Nobel prize winner, North, postulates (Bennett, 1994). Accordingly, our approach focuses on how participants implicitly conceptualize the foreign exchange market.

The epistemological frame of our approach is based on the research programme of social representations (Farr & Moscovici, 1984). We understand social representation as the collective elaboration of social objects by a community for the purpose of structuring both behaviour towards and communication about these objects. Social representations are like 'ensembles of thoughts and feelings' (Wagner *et al.*, 1999, p. 96) which frame the implicit pre-understanding of a phenomenon. They are not communicated intentionally but are disseminated in everyday discourse through images, overt behaviour, and especially through metaphors.

Analyses of metaphors have been conducted in areas as diverse as sexual experience (Wagner, Elejabarrieta, & Lahnsteiner, 1995; Weatherall & Walton, 1999), depression (Kronberger, 1999), social dilemma (Allison, Beggan, & Midgley, 1996), psychotherapy (Buchholz, 1996), moral politics (Lakoff, 1996) and foreign policy decisions (Shimko, 1994). Although the importance of metaphors for economics has been documented, in principle, by Hodgson (1993), Kubon-Gilke (1996), McCloskey (1990) and McGoun (1996), to our knowledge, this study is the first to explicitly employ metaphor analysis to arrive at an understanding of the foreign exchange market. Our general approach is thus built on the assumption that metaphor is also essential to an understanding of the foreign exchange market, to decision making in this market, and to how market participants define their roles in this market. By doing so, this study builds on approaches to financial markets which have described the foreign exchange market as a human construction in a state of flux, built on the perceptions and interpretations of market participants (Oberlechner & Hocking, 1997), and as a social global construction, a conversational machine that at the same time constructs market reality (Bruegger, 1999).

The centrality of metaphor to ideology and to human understanding in general has been stressed by Ricoeur (1975). Within psychology, two main approaches to metaphor are pursued; the cognitive and the discursive approaches. The cognitive approach stresses that metaphors, far from being a kind of linguistic decoration, function as organizing principles of thought and experience. This understanding of metaphors is based on assumptions of cognitive linguistics (Johnson, 1987; Lakoff, 1987; Lakoff & Johnson, 1980, 1999), which considers metaphors as rooted in a socially shared reality of a group and as expressing this group's 'natural' way of thinking. In a Lakoff-type analysis, cognitive root metaphors are inferred from everyday linguistic expressions. For example, if thinking about the foreign exchange market is structured by the metaphor of war, then such statements as *a battle between sellers*

and buyers [B11], or to be *bombarded with information* [FJ3] seem natural.¹ Here the metaphor of war helps participants to understand their own actions, their social relationships, and the role of such important market elements as news providers. From this perspective, the foreign exchange market is a socially shared reality, and thus market metaphors can be understood as social constructions that organize participants' everyday experiences.

Metaphor use involves cross-mapping from a source domain to a target domain by the simultaneous activation of the two domains involved. While highlighting specific aspects of the target domain, each metaphor necessarily conceals other aspects (Lakoff & Johnson, 1980). Metaphors of the foreign exchange market can thus also be understood as filters that shed light on the market from a specific perspective (Black, 1977). The full impact of metaphors, however, shows in their metaphorical entailment. For example, referring to a war metaphor in the context of foreign exchange highlights certain aspects of the market even when these aspects are not explicitly expanded. Activating the internal logic of 'the market is war' gives rise to a wide range of entailments on what trading is about; e.g. a tough place, attacks and counter-attacks, winning over an opponent, being defeated, innocent victims, danger and death. As we are culturally informed addressees of metaphors, our understanding of a metaphor's entailments follows from our commonplace cultural knowledge about the domains activated by the metaphor (Lakoff & Johnson, 1999). These entailments may also suggest which rules are valid in the specific social context of the foreign exchange market, and may provide guidelines on how to act in this environment.

While cognitive linguistics investigates culturally shared repertoires of metaphors in a de-contextualized way, discourse theory (Edwards, 1991, 1997) 'emphasizes the indexical or situated nature of social categories in linguistic interaction' (Weatherall & Walton, 1999, p. 481). Thus, within discourse theory, metaphors are seen as sources deployed within particular conversations and contexts. The emphasis in a discursive understanding of market metaphors is therefore placed on how market participants mobilize metaphors in order to accomplish social actions.

Both highlighting and hiding aspects of entailment are particularly important to the discursive management of causal attribution and accountability (Edwards, 1997). Metaphors thus not only describe and illustrate such a target domain as the foreign exchange market, but they also carry normative assumptions about what is right and what is wrong. This is yet another reason why discourse analysts insist that even closely related metaphors are not equivalent and interchangeable, but that one should consider the grounds for the choice of one over another, and what kinds of discursive business such choices may perform. The discursive view thus sees metaphors not only as available sense-making devices that are triggered by events, but rather as actively employed in managing interests in social interaction. Hence, while cognitive linguists focus on cognitive repertoires on a conceptual level, discourse analysts stress the importance of discursive practice, and of the functions performed by the use of these repertoires.

Our goal in this article is to explore how metaphors can contribute to a better understanding of the foreign exchange market and of its actors. Although they are sometimes seen in opposition, for this exploration we do not consider cognitive

¹Throughout this article, statements in italics denote verbatim expressions from the interviews. Codes in square brackets refer to interview type (B for banker, CB for central banker, FJ for financial journalist) and interview number.

linguistic and discursive approaches to metaphor as necessarily counterposed. Somewhat akin to the notion of interpretive repertoires in discourse analysis (Potter & Wetherell, 1987; Potter, Wetherell, Gill, & Edwards, 1990), we see a range of cultural and discursive resources available to market participants; how they deploy them is a function of both social and conversational context. The analysis starts by sketching out the nature of the metaphorical resources which are broadly available to participants, then addresses the functions of these resources, and finally examines how these resources are deployed in different conversational contexts. In particular, we will address the following sets of questions: (1) What are the main metaphors which are collectively used by market participants when discussing the foreign exchange market? This question is examined by a Lakoff-type exploration of interviews. (2) What makes the resulting socially shared repertoire of metaphors suitable for conceptualizing the foreign exchange market? This part of the analysis addresses the ability of the main market metaphors to answer two key questions: (a) who am I dealing with in the market? and (b) how predictable is the market? By considering our cultural knowledge of the main market metaphors, we discuss which entailments regarding these two questions are highlighted by the main market metaphors and we explore relations between metaphor usage and notions of market predictability. (3) Are the metaphors used by market participants, when explicitly asked about metaphor, different from those which are produced elsewhere in the interview? This final part of the analysis discusses what conclusions might be drawn from a comparison of metaphors in two key parts of the interview.

Method

Participants

Data were collected in 55 interviews with expert participants in the foreign exchange market. We interviewed 15 foreign exchange reporting experts (editors, sub-editors and senior journalists) from financial news providers and 40 foreign exchange trading experts (treasurers, heads of trading divisions, senior trading managers and senior traders), 34 from commercial/investment banks and 6 from central banks. Interviewees from both banks and financial news media were included, since trading decision makers and news providers play a highly interdependent role in the foreign exchange market. Interviewees in Austria ($N = 12$), Germany ($N = 8$), the UK ($N = 26$), and Switzerland ($N = 9$) were recruited from a total of 31 foreign exchange institutions in Europe (19 commercial/investment banks, 3 central banks, 9 financial news organizations). The small number of interviewees in each country does not allow for systematic cross-national comparisons. Our sample also reflects the typical under-representation of females in this field ($N = 52$ males, $N = 3$ females).

Materials

Interviews took place at the interviewee's work location and lasted approximately 1–1.5 hours. They were semi-structured, addressing such core foreign exchange topics as causes of currency fluctuation, market expectations, rumours, the impact of changes in technology, information sources, the role of the media, decision making and market expertise.

Interviews were recorded and transcribed verbatim for the analysis. The analysis leading to the identification of main metaphorical fields of the foreign exchange

market was based on the complete transcripts of 26 interviews: 11 commercial and investment banker interviews, 6 central banker interviews and 9 financial journalist interviews were included. In the selection of interviews for this analysis, the relative weight of the subgroups in the total sample was adjusted in order to arrive at a balanced representation of different market players. Within the three subgroups, interviews were chosen randomly. We discontinued the inclusion of further interviews when, after the analysis of 26 interview transcripts, the structure of the underlying metaphorical fields appeared to be comprehensive and stable.

Our analysis of how metaphor use relates to individual assumptions about market predictability is based on answers to the introductory question in all interviews. The comparison of metaphors in two different interview parts considers answers to two specific issues in all interviews: (a) the introductory question: 'What conditions cause a currency to fluctuate in the foreign exchange market?' and (b) the later instruction 'Please find a metaphor or an analogy for the foreign exchange market'.

Metaphor operationalization

For the purpose of this study, we consider metaphorical statements as all non-literally used expressions or segments of a text which map elements of one domain of experience to another (Schmitt, 1995). The non-literal quality of pieces of text can be accessed by a de-contextualized reading of the text. An in-depth textual analysis of the interviews can help reveal the use of metaphors, which are applied unconsciously most of the time. Consider the following quote by a trader:

I did Mark/Swiss there and we were, I can say, for some years, we were number one in the world and we were killing people. We were really killing people by frightening them. [B9]

In a literal understanding of the quotation, trading appears to be a matter of life and death, involving physical assault. This understanding is reinforced by the following quotations:

No gambling, you go for a kill. Gambling to me is entertainment, to the point where it becomes obsessive. But that is sick, you need a doctor, that's not like war, you don't go out for a kill. This is more brutal, this is more abusive than gambling. People get abusive on trading floors. [B14]

Somebody will come in and there will be a take-over battle² and we can make even more money. [F6]

Underlying these quotations, one metaphorical concept emerges: TRADING IS WAR. This cognitive metaphor allows the integration of a large number of textual segments into a coherent imaginative scenario.

Metaphor analysis procedure

Our understanding of conducting a metaphor analysis follows Schmitt (1995), who suggests a step-by-step procedure based on a cognitive linguistic understanding of

²Different degrees of conventionality in the use of a metaphor exist. 'Take-over battle' exemplifies metaphorical expressions which appear to be frozen idioms rather than dynamic formulations expressing active systems of subjective understanding. These idioms represent conventionalized conceptual mappings which, however, may indicate the co-presence of less conventionalized cases. For example, 'cash flow', a highly conventionalized expression, is complemented by more dynamic metaphorical formulations based on the ocean metaphor. Conventionalized mappings are therefore psychologically real and not only remnants of some earlier stage in historical development; they can be activated, and we think by using them (Lakoff & Johnson, 1999).

metaphor. First, the transcribed interviews are reduced to those expressions with imaginary or metaphoric contents within their immediate context. This results in a list of de-contextualized metaphorical statements. These statements are then sorted according to shared metaphoric roots, with the possibility of assigning one statement to more than only one metaphorical field. Finally, the resulting clusters of metaphoric expressions are labelled and compared to the root metaphors emerging in other interviews. The use of a computer programme in this qualitative analysis makes it possible to easily trace back the de-contextualized statements to their original context and thus to support their interpretation. Texts were analysed with the help of WinMAX, a software programme for qualitative research which facilitates text analysis and interpretation in such areas as selecting, coding and comparing textual segments (Kuckartz, 1995).

Development of a preliminary coding system

Each of the three authors of this study independently analysed three interviews by highlighting all metaphorical text segments. On the basis of these textual data, a preliminary system of metaphor codes was established. Single metaphorical expressions without reference to other concepts were excluded.

Analysis of main market metaphors

Twenty-six interviews (including the interviews used for the preliminary coding system) were analysed by the three authors of this study. All metaphorical text segments were marked and assigned to metaphor codes (inter-rater agreement was .92). This analysis resulted in a structure of seven main market metaphors.

Analysis of relations between metaphors and market predictability assumptions

Two of the authors together rated the first page of each interview transcript according to interviewees' predictability assumptions. All interviews were assigned one of the following three values: 1=if the foreign exchange market was seen as not following any rules that allow the prediction of the market, 2=if the market was perceived as following rules which are unintelligible or subject to change, and 3=if the market was seen as following clear rules for the prediction of the market. Predictability ratings of the interviews were determined by concordant individual ratings of the two authors; in the case of different individual ratings, interviews were discussed until a full consensus could be established. Inter-rater agreement with a third rater, an undergraduate student who was only briefly instructed about the scale and who then independently assigned ratings to all interviews, was .75. Relations between implicit market metaphors and assumptions about market predictability were explored by correspondence analysis, a technique suitable for analysing relations among categories of discrete variables.

Comparison between implicit and explicit market metaphors

Using the final coding structure, two of the authors together analysed two parts of all interviews. (a) To obtain implicit market metaphors, they analysed answers to the introductory question of the interviews which addresses the foreign exchange market in a broad and general way and invites a spontaneous and general market description. (b) To obtain interviewees' explicit metaphorical conceptions of the foreign exchange market, they analysed deliberate answers to the metaphor question. Both parts of the interview were jointly analysed by these two authors, who together read the two

parts of each interview and determined which of the seven main metaphorical representations of the market which had resulted from the main analysis could be identified. Again, interview parts were read and discussed until full consensus could be established. Since the comparison of implicit and explicit metaphors was conducted for all interviews, it also allowed us to validate the structure of main market metaphors.

Results and discussion

Main metaphorical fields of the market

Our analysis shows that interviewees' understanding of the foreign exchange market revolves around seven main metaphors: the market as a bazaar, as a machine, as gambling, as sport, as war, as a living being, and as an ocean.³ These metaphors appear both implicitly throughout the interviews and explicitly in the deliberate choice of a metaphor for the foreign exchange market. We will introduce these main market metaphors by presenting verbatim quotations from the interviews and by discussing such crucial characteristics of these metaphors as stressed or concealed market features, the suggested rationality of the market, the role of social others, and the time line suggested by the metaphor.

The market as a bazaar

Although the understanding of the foreign exchange market as a bazaar may seem obvious, it nevertheless represents an important metaphorical conceptualization. The bazaar metaphor translates the abstract notion 'financial market' into the concrete and spatial setting of a marketplace locality; i.e. into an explicit location where physical goods are exchanged. The foreign exchange market here is conceptualized simply as one specific form of marketplace, *a place where people are buying and selling money* [B5]. Currencies are compared to any other kind of goods, such as fruits, used cars, or kitchen plates: *buying and selling of one commodity for another ... the FX markets are no different* [B21]. *Currency is a commodity, as you can sell chairs, refrigerators ... If you could move refrigerators through a Reuters screen, you would probably be selling them by now* [B28].

The bazaar metaphor implies a personalized setting and a specific rationality of behaviour in such a setting. Unlike in the machine metaphor, prices in a bazaar are determined not by objective mathematical algorithms but emerge as the result of complex social interactions and subjective value attributions. *There are no rules, and there is no right price; the right price is the price you've done the deal* [B28]. Bazaars are places of human encounters *where buyers and sellers meet* [B3]. There, social and physical needs may be fulfilled by an exchange with other market participants, which may increase the satisfaction of all parties involved. In a bazaar, buyers and sellers do not form detached prices in isolation, but are highly dependent on the surroundings of the bazaar. Sellers, for example, have to adjust their prices to the current supply and demand: *if you don't find a bid somewhere, then you sit on your apples and oranges, then you can eat it or make marmalade or something* [B33]. To do so, sellers have to take into account information from other sellers: *he realizes that the other guy is selling plates for two dollars, so he drops his price to one dollar ninety and all his customers come back* [FJ14]. The bazaar metaphor thus implies a strong

³Some of these metaphorical fields have also been described in previous metaphor research, for example, the sports, the war, and the machine metaphors (Lakoff, 1987), and the water metaphor (Patthey-Chavez, Clare, & Youmans, 1996). For an overview, see Weatherall and Walton (1999).

Table 1. Quotations illustrating the Market as a Bazaar

THE MARKET AS A BAZAAR	<ul style="list-style-type: none"> ▪ <u>like a supermarket, you can buy or sell currencies...as you can, say, sell and buy bread and butter</u> [FJ10] ▪ <u>very similar to people buying and selling vegetables</u> [B23] ▪ <u>you buy apples cheap and you sell for a higher price, buy low, sell high... it might be petrol; it might be wheat, anything. For me it is a product, the dollar</u> [B6] ▪ <u>a supermarket... second hand car dealing</u> [B20] ▪ <u>what they are doing is buying and selling clumps of money</u> [FJ6]
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awareness of the given social environment. Customers, too, may first window-shop before they choose a product: *customers who access the market go to a couple of shops ... they compare prices and then after seeing a couple of prices from a couple of stores, they then just go to one* [B4]. (See Table 1).

The market as a machine

The foreign exchange market as a machine highlights an understanding of the market as a system which works with perfection and reliability: *I don't think there is any irrationality at all in the FX markets. I think it's per definition perfect* [B4]. Here the market can be understood as governed by defined rules and built-in mechanisms. *These movements can be calculated in probability terms. And this is a purely mathematical process* [CB4]. The mechanisms of the machine define, for example, the input the machine requires, the output it delivers, and the process that generates output from input. This input-output orientation of the machine metaphor is also shown in the comparison of the financial news to *the fuel for the market's engine* [FJ8]. (See Table 2)

Understanding the market as a machine implies a logical and analytic rationality. The optimal interaction with the machine is thus detached: *you have to make decisions on certain probabilities on the basis of your past experiences but not on the basis of your personal emotions* [CB4]. A machine has no emotions; therefore, dealing with a machine should be without emotions and *any trading decision is a totally emotion-free thing* [B14]. Although the inner mechanisms of this machine may be hidden, expertise for the market as a machine can be gained through observation, interaction with, and learning about the machine. *If you drive a car for 20 years, and the car makes a noise, you can pretty much tell what this noise is emanating from* [B14]. (See Table 2).

The market as gambling

The gambling metaphor refers to a 'rationality' of chance and coincidence. *This is sometimes like a casino where you are betting on rouge or black or zero* [FJ13]. Whereas an operator of a machine can develop expertise and knowledge about the

Table 2. Quotations illustrating the Market as a Machine

THE MARKET AS A MACHINE	<ul style="list-style-type: none"> ▪ <u>the mechanics of dealing</u> [B21] ▪ <u>I should have got more mileage out of this machine</u> [B20] ▪ <u>it's going well; let's make sure we leverage up on it</u> [B5] ▪ <u>spreading a rumour to engineer a move</u> [CB1] ▪ <u>they are like this sort of gear-box or transmission mechanism of developments in the real economy of trade and capital flows... And the efficiency with which they operate will affect how easily you can transact that business</u> [FJ8]
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workings of the machine and its underlying algorithms, a player cannot learn to understand the gamble's chances, since the decisive element is luck. Unlike a machine, gambling stresses risk taking and emotional involvement. Players may become unreasonable and *get carried away ... lose their sense of sensibility, and they lose all sense of why they put that position on* [B21]. Personal responsibility for, and influence over, outcomes of the gamble are externalized in the gambling metaphor: *some of the best returns from fund managers are [from] people who are incredibly lucky* [B21]. As in the machine metaphor, other market participants are comparatively unimportant, since they do not influence the algorithm of the gamble.

Besides pure gambling, the metaphorical field of gambling includes strategic games, such as *professional poker or a game like chess perhaps* [B17], in which the combination of chance and strategic thinking becomes manifest. These games highlight elements of discipline, skilfulness and expertise, and may thus be seen as a bridge between the metaphorical fields of gambling and of sports. (See Table 3)

The market as sports

In the market perceived as a sports competition or as a race, the ultimate goal and rationality is to win against others. The central motive is *to have the competitive spirit* [B3], *to be the best* [B21], *the ambition to beat* [B11] others, *to be a little quicker, a little more excited, maybe a little sharper* [CB3]. *Everybody becomes Mr. Iron Man* [B21]. An indisputable awareness of other participants follows from such felt interaction and competition.

A sports competition, unlike war, a market metaphor discussed later, is always conducted within a defined framework. It has an agreed-upon beginning and end; it takes place on a particular *playground* [FJ14], and it follows a set of constitutive rules which are not questioned during the event. In a sports competition, opponents are also not destroyed completely, since they are needed to start the competition anew. The sports metaphor thus gives the foreign exchange market a generally more calculable and less dangerous undertone than does the war metaphor. This sometimes even noble air of fair play and sportsmanship might hide the market's existential and pervasive consequences in the economic and social world outside the foreign exchange market. However, the market will be *cruel* [FJ13] to, and will not remember

Table 3. Quotations illustrating the Market as Gambling

THE MARKET AS GAMBLING	<ul style="list-style-type: none"> ▪ <u>trying desperately to make that money back; it becomes like a compulsive gambler's syndrome</u> [B21] ▪ <u>that is the kind of game that people play to win</u> [FJ3] ▪ <u>if I had a really bad day, I would like to explain the job as to be in a casino and play roulette</u> [B18] ▪ <u>casino describes a lot of the environment that takes place. That people get carried away... I'm putting on red because I think it's going to land in red</u> [B21] ▪ <u>once you have a cushion, and the little chips on your table you can use, then it doesn't matter if you lose three or four chips and put them on your first bet</u> [CB3]
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for long, heroes who have passed their zenith: *like in horse races* [B10] or in *a soccer team* [B9], individual competitors *only have maybe five or six years when [they] are the best runner or the best scorer, if they are not scoring the goals any more, [they] are off the track ... and will never come back again* [B10].

A subcluster of interview expressions belonging to the sports metaphor refer to images of hunting and chasing, with a maximum evocation of dynamic movement, speed, and incitement to reach peak performance. The subject's personal ambition to run and to compete implicit in a sports competition here turns into a must, forcing the individual to run after a target or away from some threat. Consequently, the 'foreign exchange event' and its participants become less contained: *rabbits running around ... being chased by a fox* [B13] probably run for their life. (See Table 4)

The market as war

War was a frequently used market metaphor in the interviews. Currencies come *under attack* [B5], market participants *defend positions* [B9], follow certain *strategies* [CB3] or *intervene* [B1] when they are *powerful and strong enough* [CB3]. As in a sports contest, in war there are opposing parties or individuals and there is competition. In contrast with sports, however, in war winning is a matter of survival. *There are always people who are quick enough to get out. The best. The quickest. And they make money on it. And then you have the stampede, and they die. They got run over* [CB3]. The market as war represents a continuous threat in which trading is a matter of life and death. *If you're weak, you have no chance to survive there ... you're even gonna be hit by your own colleagues sitting next to you* [B10]. In this struggle for survival, market participants do not think in terms of win-win solutions but in terms of self-defence, survival of the fittest and martial law; everyday moral rules are not valid since *this is a dirty industry* [B14]. In war, opponents are not only beaten in the way competitors are in sports; instead, they may be *hurt* or even *killed* [B3]. *Make them run, if you wanna move the market. You*

Table 4. Quotations illustrating the Market as Sports

THE MARKET AS SPORTS	<ul style="list-style-type: none"> ▪ <u>to me trading is like sports. It's about winning. It's a competitive game that starts every morning at 7 o'clock</u> [B14] ▪ <u>like a keeper at penalty ... he jumps into one direction and hopes the shot goes there</u> [B15] ▪ <u>you have to be good as a single individual, but you have to be a team player as well</u> [B9] ▪ <u>you live in a world of competition ...you want to be better, quicker... so you have to watch your competitors</u> [FJ9] ▪ <u>not scoring the goals anymore, you are off the track</u> [B10] ▪ <u>[if] someone phones you up, you have to judge whether he sounds like he is playing in the first division</u> [FJ8]
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have to hurt people. If you hurt people, they run, if they run, the market moves. And you have to be very aggressive in that [B9].

In war, people use weapons and even unfair tactics. *Ice cold, regularly, when you'll be on the loo, that's when I take and will throw my hand grenades into your shelter. That's the way to do it ... why do you think soldiers always attack at four in the morning?* [CB4] The existential threat represented by the market as war implies a strong personal involvement of individual traders who have to fight for their lives. In this life-threatening environment, such personal characteristics as being strong, brave and fearless are crucial. *It is a tough world. It's neat for people who can take punches. If you don't like to hand out, if you can't fight, don't get into it* [B14]. (See Table 5)

The market as a living being

The market as a living being is a comprehensive and frequent metaphorical conceptualization of the foreign exchange market. Characteristics usually associated with living beings are attributed to a market perceived as an animated organism following its own rhythm.⁴ The market is, for example, *crazy, is too fast, has no time to think* [FJ9]. As a living being, the market reacts emotionally to such stimuli as when *shock news items would panic the market further* [CB1] or *factors came along that made the market nervous* [FJ4]. The market as a living being also anticipates and interprets events when *the market then draws its conclusions* or *thinks this way* [B4]. For traders it is important to read the market's mind in order to predict its behaviour. *What market participants often seem to be doing is not trading on what*

⁴The source domain termed living being here has been labelled 'animal' by others (Lakoff, 1987); in more abstract terms, it expresses the notion of independent agency.

Table 5. Quotations illustrating the Market as War

THE MARKET AS WAR	<ul style="list-style-type: none"> ▪ <u>a real battle between Singapore and Tokyo</u> [FJ3] ▪ <u>if you do nothing, you are killed</u> [B3] ▪ <u>time always makes things relevant or irrelevant. Bingo. You are dead</u> [B14] ▪ <u>that customer may be able to bury you or totally kill you</u> [B20] ▪ <u>if you get slapped in the face, you turn defensive. And if you personally perceive success, you get very aggressive</u> [B14] ▪ <u>as long as you can justify your actions and you are successful, you will survive</u> [B21]
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they think the significance of information is, but what they think the market will interpret the significance of information to be. I tend to think of markets just like this big brain but of a very stupid person, and they often respond in these ways that ... they'll say well, this is stupid but we do this [FJ4].

The behaviour of a living being is not always intelligible, and so it may be *extremely difficult to find out why the foreign exchange markets do what they do* [FJ6]. As a living being a market does not function according to fixed rules but depends on its *mood* [B29], thoughts, and intentions: *market behaviour changes from one day to another* [CB4]. Markets also show different reactions depending on whom they deal with. *If the Health Minister says he thinks the dollar is overvalued, you know then probably markets don't worry. I mean if the Treasury Secretary says so, then they listen* [FJ8]. The market as a living being can be socially influenced by the interaction with market participants. Participants *let the market know what our intentions are* [CB3] or may *keep the market guessing* [CB4].

The general living being metaphor of the foreign exchange market serves as a basis for two more concrete elaborations: beast and lover. The market as beast – *sssssssss, a great big creature* [FJ2] – is huge and always hungry. *It's so large and the appetite for information is so strong* [FJ5]. Traders, like heroes, must also fight, cope with, and to gain ultimate victory, overcome this dangerous animal. *This comparison with a wild animal, I think the challenge is to master it ... and there are days you are doing well, and there are days you gonna be bitten by it* [B9]. The existential danger represented by the beast indicates some overlap with the war metaphor, *because if we don't govern it, we are destroyed* [B14]. In contrast, the relationship with the market as lover is characterized by strong attraction and fascination. *All dealers who are really dealers, they have an erotic relationship to the market* [B2]. This intense relationship may cause passionate emotional swings. It may cause feelings of excitement and being high – *it can give you a lot of satisfaction, a lot of great feelings* [B9] – but simultaneously it represents the danger of emotional dependency. *I've lost a lot of money, because I felt, got emotional on a position, getting married to a position ... Getting emotionally attached to it* [B21]. (See Table 6)

Table 6. Quotations illustrating the Market as a Living Being

THE MARKET AS A LIVING BEING	THE MARKET AS A BEAST	<ul style="list-style-type: none"> ▪ <u>I would describe it probably as an animal nobody should ever get himself into</u> [B14] ▪ <u>the market, they say, always moves in the direction in which it will hurt the most people</u> [B4] ▪ <u>and it is like an octopus, feeding off on itself all over the place</u> [FJ3] ▪ <u>I don't get an image, I get a word, rapacious</u> [FJ6]
	THE MARKET AS A LOVER	<ul style="list-style-type: none"> ▪ <u>you have to be emotionally ready to do something. To be triggered, to be stimulated</u> [B14] ▪ <u>this emotional involvement can get much too deep. And, we say, you get sort of married to a position; you just can't let go of it</u> [B21] ▪ <u>it can give you a lot of satisfaction, a lot of great feelings</u> [B9]

The market as an ocean

The market as an ocean is another important metaphorical field. Interviews abound with liquidity-related expressions such as *flows* [e.g. B29], *levels* [B21], *currents* [B24], *streams* [FJ01], and *channels* [B4]. These expressions are used both to describe the market as a whole and its components. Currencies *fluctuate* [B21] or *float* [B34], information is a *source* [B31] or gets *absorbed* [FJ14], Austria is a *bottleneck* for *big western money trying to get into the East* [B14]. The working of the market as an ocean is based on the 'hydraulics' of interconnected liquids: *the market tends to move things to an equilibrium level where the market feels its fair value* [B21]. To make this work, unrestricted liquidity is a must: *In a market where there is no liquidity, markets jump. A guy could just come in with 10 dollars and move the market massively. When liquidity comes in, instantly it will be realigned back* [B4].

As an ocean, the market is less predictable and less deterministic than as a machine; for example, the market as an ocean *is open to nearly every influence that influences people's lives in terms of technology, politics, economics and geography* [B5], whereas these outside factors do not directly affect a machine. While variations in functioning, such as *economic cycles* [B5] and chaotic periods, are inherent in the nature of an ocean, they would be signs of malfunctioning in a machine. The market as an ocean knows of quiet and of dramatic times. There are *times when everything is calm and you have normal market conditions ... when the currency markets are flat in the water* [FJ4]. However, such invisible *underlying flows* [B11] as *trade flows or portfolio flows* [FJ7] may *knock the dam over* [FJ1].

Then, *currency markets fluctuate* [B28], *money sloshing around ... sloshing like water* [FJ5]. In such times of crisis, it may happen that *the lira plunged* and *Kohl had to go onto Italian television with Dini to try to smooth the waters* [FJ4]. Like a stormy sea, currencies can *calm down* [B3] again. The ocean metaphor implies neither the complete inanimateness of a machine metaphor nor the intentionality of a living being. In an ocean, people interact with the organic rhythm of the *ebbing and flowing* [FJ5] of tides. Observing this rhythm, *people are very obsessed with levels* [B21] and *certain levels ... will at times initiate extensive price movements* [B11] because *shock waves created within one country very, very quickly go around the globe* [FJ17].

Vis-à-vis an ocean, the individual's influence and responsibility are marginal. Because an ocean does not need human attendance to function, market participants often function as bystanders. They may, however, also consider themselves adventurers, seafarers who *take some cover on board* [B5] and *put in the auto-pilot and cruise* [B11], or surfers *riding the crest of a wave* [FJ3]. Surfing the waves of the ocean allows one a certain competitiveness, which bridges the ocean metaphor to sports. *You are riding a wave; at some point it comes to an end and you want to get off before it hits the shore. That is what makes the difference between the winners and the losers in any financial market: you have to know when to get in and, more importantly, when to get off* [FJ3].

The autopoeitic, i.e. self-creating, power of the ocean is shown in its constant *going up and down* [FJ6]. The ocean's self-creating power guarantees the future existence of the market in a way the machine cannot, thus hiding the fact that the market is fragile and human-made. The ocean metaphor also makes participants forget that there inevitably have to be losers in the market. The supposed self-sustaining powers of the ocean, its endless and effortless *ebbing and flowing* [FJ5], give rise to the phantasm that all players can equally profit from its unlimited, ever-renewed energy. In the vastness of an ocean, all may have their share without visibly affecting the ocean and without harming others. (See Table 7)

Metaphorical entailments: The 'other' in the market and market predictability

The main metaphor analysis of the interviews resulted in seven main market metaphors. Figure 1 represents the present authors' attempt to map the territory of market metaphors by graphically arranging these main metaphorical fields and by establishing semantic relations between them. Permeable borders and overlaps between fields indicate that metaphorical expressions may relate to more than just one field. For example, notions of hunting and chasing merge the sports and the war domains.

Figure 1 also represents the present authors' effort to arrange the main metaphorical fields of the foreign exchange market along two dimensions; 'metaphor focus' and 'market predictability'. All metaphorical fields provide inherent answers to two fundamental questions about the market: (a) 'Who am I dealing with in the market?', and (b) 'to what degree is the market predictable?'

The experiential 'other' in the market: Action-oriented and ontological metaphors

Concerning the question of with whom the subject deals in the market, two groups of metaphors can be distinguished. The first group of metaphors focuses on a market participant's way of relating to other participants. In other words, these metaphors

Table 7. Quotations illustrating the Market as an Ocean

THE MARKET AS AN OCEAN	<ul style="list-style-type: none"> ▪ <u>a beach ... global on this side and very local on the other [B8]</u> ▪ <u>an ocean ... because it is so deep and so liquid ... it can flow; it has tides, and it is all one; it is all connected ... When it all flows out this way that means the level rises there ... ready to flow you now on the other layer [FJ1]</u> ▪ <u>a tide ... washing in and out, sort of things washing up on shore [FJ5]</u> ▪ <u>I visualize the FX market as a big wave that is rolling in and one of these days it is going to hit that beach so hard [FJ3]</u> ▪ <u>we are part of the water; we are part of the liquid I guess, or we could also be the moon that is pulling the tides one way or the other, or whatever it is that makes the ocean move or makes waves [FJ5]</u>
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mainly express possible scenarios of interacting with other participants; i.e. trading goods at a bazaar, sporting, gambling or belligerent fighting. Assumptions about market nature are only implied here and mainly define such backgrounds for participants' actions as a bazaar, as a playing ground, as a casino or as a battlefield. In the second group of metaphors, the market participant is mainly oriented towards the entity of the market. These metaphors primarily express the possible nature of this market entity, i.e. a machine, an ocean or a living being. Here, the interaction of a participant is directed not at other participants but mainly at the market entity, relating, for example, to the living being metaphor, observing and surfing the ocean metaphor, and operating the machine metaphor.

Action-oriented metaphors thus describe what it means to act in the foreign exchange market. The action expressed by these metaphors is goal-oriented, since all action-oriented metaphors refer to the final goal of winning through interaction or competition with other market participants. Winning can be achieved in different ways: by trading, by gambling, by sportive competing or by belligerent fighting. The action expressed by these metaphors is usually entertaining or thrilling; it often stresses risk taking, demands a high degree of personal involvement of the individual, and stretches a participant's limits. It may result either in winning or in losing. Metaphorical entailments of the different action-oriented metaphors demonstrate important variations. For example, in winning by gambling, success depends at least partly on luck and does not necessarily imply the defeat of another market player. In contrast, to win in sports, success depends on the individual's performance. Here, instead of chance, personal skills and achievement result in winning. Overlap between these two metaphors exists in such strategic games as professional poker, which combine chance and skill.

A different example of metaphorical entailment would be that both sports competitors and warriors have to demonstrate such superior skills and traits as being

strong and fearless. However, winning in sports is less serious than in belligerent fighting, where winning becomes a matter of survival. Also, the buying and selling of such goods as vegetables in the bazaar metaphor refers to winning, namely in the sense of making money by skilful trading. Winning is less immediately critical here and involves less rivalry with one's opponents. In contrast to the other action-oriented metaphors, the bazaar image thus plays down the thrilling aspects of trading and obscures the high stakes involved in decisions about potentially very large gains or losses. Instead, the bazaar metaphor emphasizes the social interactions between traders and customers.

Unlike action-oriented metaphors, ontological metaphors construct the market as an entity which exists independently of human actors. Market participants may encounter the market as a machine, as an ocean or as a living being. Each of these ontological metaphors implies a certain understanding of the market and a unique way of relating to it. Through ontological metaphors, the market is no longer seen as a man-made product but as an outside reality with which market participants are confronted. Market participants are no longer part of a multitude of social relationships in the market, but instead face a market as a commanding *vis-à-vis*. This conception of the market as a separate object has a crucial effect on the perceived controllability of market events. The market as an ocean or as a machine follows its own rules, uninfluenced by the market participant. The market as a living being may be influenced by social interaction; however, in this interaction the market may decide to follow its own will. Furthermore, ontological metaphors allow the participant to obscure the agent. Market events are attributed to an outside force here rather than being understood as the consequence of market participants' behaviour. As a result, ontological metaphors may play down the effects of human behaviour.

Market predictability

As in all financial markets, in the foreign exchange market the correct anticipation of market movements is the key to success for participants. Accordingly, one central aspect of market metaphors may be that they contain assumptions about the predictability of the market. Different metaphorical fields may imply various degrees of perceived market predictability, as already suggested by Fig. 1.

If the market is perceived as a machine, anticipation follows the logic of an input-output prognosis. Specific events will produce specific reactions which can be computed according to mathematical formulae. The ocean and the living being metaphors express a fundamentally different organic logic of anticipation. Here, the market's reaction to an event does not only depend on the external event, but also on pre-existing internal conditions in the market as well as on other influences. For example, in the ocean metaphor the market's reaction will depend on the degree of *liquidity* available, on existing *flows* and on simultaneous *influences* which determine the relative importance of the event. In the living being metaphor, anticipation implies empathy and even mind-reading, since the reaction of the market depends on the market's subjective moods and interpretations. Action-oriented metaphors, too, imply different degrees of market predictability, more specifically the predictability of other market participants' behaviour. The market as gambling can only be predicted by means of luck. In the market as war metaphor, the enemy is likely to behave in a way that is difficult to predict and to break rules, whereas in the market as sports the behaviour of the other players will follow clearly defined rules that present a more predictable setting.

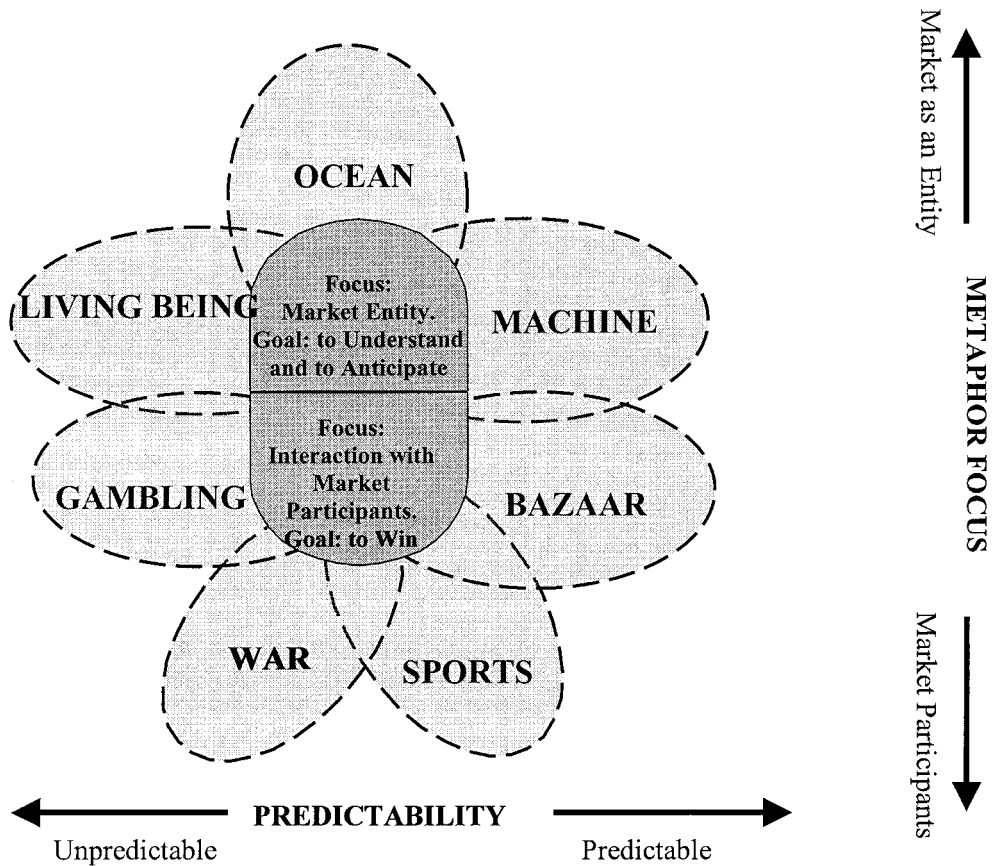


Figure 1. Map of market metaphors.

Our exploratory correspondence analysis explored relations between metaphor usage and notions of predictability in the first page of interview transcripts.⁵ We related the metaphorical fields emerging in this introductory section to our ratings of underlying assumptions about market predictability. Results of an ANACOR correspondence analysis⁶ in Fig. 2 indicate that different metaphorical conceptions of the market are indeed related to differing degrees of assumed market predictability. The correspondence analysis figure illustrates the similarity or dissimilarity between different categories of a variable with respect to another variable; here it illustrates the similarity of different metaphors with regard to assumed market rules. The closer metaphors are

⁵The introduction of the interviews was chosen for this analysis as a convenience. Metaphors used and notions about market predictability conveyed may change in the course of the conversation; therefore, results of the correspondence analysis pertain to metaphor usages and not to subjects.

⁶The data used to examine these relations do not represent interval data which would be required for a factor analysis, the standard technique to describe relationships between variables in a low-dimensional space. Whereas the χ^2 statistic tests row and column profiles of contingency tables for independence, it does not reveal the dependence structure of the data. Correspondence analysis incorporates the idea of factor analysis and the χ^2 statistic by describing the relationships between categories of nominal variables and the relationship between these variables in a low-dimensional space. Correspondence analysis allows the production of a graphical output in which, for each variable, distances between category points reflect the relationships between categories, i.e. similar categories are plotted close to each other. For a description of correspondence analysis, see Greenacre (1984) or Doise, Clemence and Lorenzi-Cioldi (1993). In the present study, the ANACOR procedure in SPSS was used to conduct the correspondence analysis.

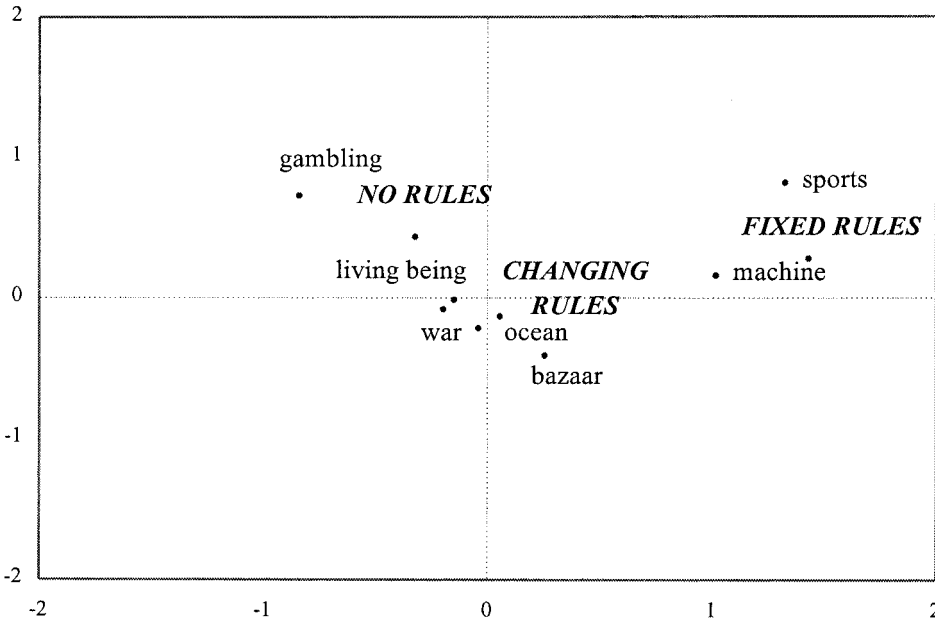


Figure 2. Correspondence analysis.

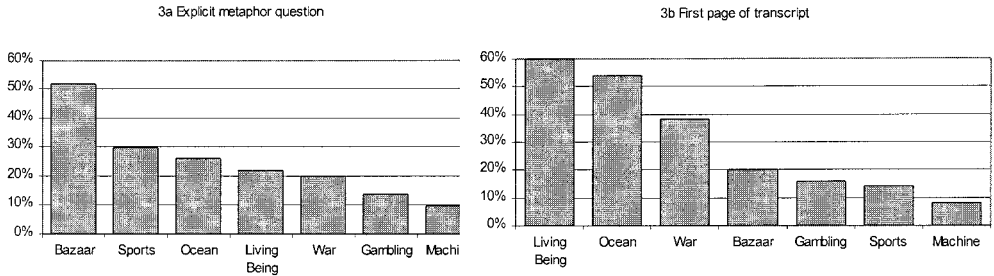
located within the graph, the more similar they are with regard to the associated understanding of market rules.

Figure 2 shows that in comparison with other metaphors, the machine and the sports metaphors are more strongly associated with the assumption of fixed market rules, while the bazaar and the ocean metaphors tend to be more strongly associated with the assumption of partial or changing rules than do the other metaphors. The living being and the war metaphors are associated with the assumption of changing rules and with the assumption of an absence of rules comparatively more often than the other metaphors, suggesting that these two metaphors allude to a conception of a market which may follow variable rules but which also includes possible unexpected reactions. Finally, the gambling metaphor is most strongly associated with the assumption that there are no predictable market rules. Therefore, while the statistical results must be regarded with caution because of the small number of subjects included in the analysis, these results support our qualitative analysis.

Explicit and implicit foreign exchange metaphors

How does the issue of whether metaphors are deliberately generated or implicitly used affect which metaphors are generated? Both in answers to the specific instruction to give a foreign exchange market metaphor and in the introductory discussion of currency fluctuation, all seven main market metaphors resulting from the main analysis can be found. This overall finding confirms that the identified metaphors fundamentally express participants' experience of the foreign exchange market. However, a systematic comparison of metaphor use in the two parts of the interviews reveals some remarkable differences, as shown in Fig. 3.

Figure 3 compares the occurrence of main market metaphors in answers to the deliberate market metaphor question (explicit metaphors) and in the first transcript



Note. Percentage of interviews ($N=50$) in which the main metaphorical fields appear (a) in answer to the explicit metaphor question and (b) at the beginning of the interview. All metaphorical fields identified in these interview sections are shown in this comparison, i.e., multiple metaphorical emergences in the same section of the same interview are included.

Figure 3. Occurrence of main metaphorical fields in two interview sections.

page (implicit metaphors) of all interviews.⁷ The figure shows that the bazaar metaphor appears most often in deliberate answers to the metaphor question but it does not play a dominant role in implicit metaphorical descriptions of the foreign exchange market. Whereas in explicit answers to the deliberate metaphor question the sports metaphor appears more often than the related war metaphor, implicitly the market is more often conceptualized as war than as sports. Furthermore, the organic ocean and living being metaphors, appearing only with medium frequency in explicit metaphorical characterizations of the foreign exchange market, are the most frequent implicit metaphors. In contrast, gambling, and in particular the machine metaphor, appear very rarely both in deliberate answers to the explicit metaphor question and in the introductory general foreign exchange market discussion.

To compare the frequencies of metaphors in the two different interview contexts, a McNemar test for related samples was conducted for all main metaphorical fields. Results indicate that the living being metaphor ($p=.001$), the bazaar metaphor ($p=.002$), and the ocean metaphor ($p=.018$) are used differently in the two parts of the interview to a statistically significant degree, and that there is a statistically non-significant tendency for sports metaphors ($p=.077$) and war metaphors ($p=.096$) to be used differently in the two parts of the interview. Whereas the living being, the ocean and the war metaphors are used more often in the beginning of the interview than in explicit answers to the deliberate metaphor question, the bazaar and the sports metaphors are used more frequently in explicit answers to the deliberate metaphor question than in the first part of the interview.

While this quantitative comparison is of an exploratory nature only, and should therefore not be over-interpreted, some differences between explicit and implicit metaphorical conceptualizations appear meaningful and worthy of discussion. In the explicit context, where market participants are made reflexively aware of the importance of metaphor, they may also feel more socially accountable for metaphors and their entailments. As a result they produce such metaphors as the market as bazaar and the market as sports, which are not only more pro-social and legitimating of the market in general but which also serve to justify their own position within the market. Explicit metaphors are linked to somewhat greater market predictability, which helps experts

⁷Five interviews in which the deliberate market metaphor question was not asked were excluded from this comparison.

to justify their role in an otherwise unpredictable and random market environment. In the implicit context, where market participants are less aware of the implications of their metaphors, and therefore less attuned to accountability, metaphors suggest that the market is less pro-social and that participants are less in control.

The difference between the metaphors produced when interviewees were explicitly asked to do so and those metaphors permeating participants' ordinary talk about the market is also about the distinction between 'in principle' and 'in fact' views and interpretations (Ichheiser, 1949). Whereas explicit metaphors may tell us what market participants think are relevant metaphors in principle, implicit metaphors may tell us about the participants' understandings in practice. The difference between explicit and implicit metaphors may, at least partly, be indicative of how market participants think they should talk about the market and how they actually talk about it. For example, the dominant explicit use of the bazaar metaphor, a conceptualization closest to common economic discourse, could be seen as strategically representing a socially acceptable and harmless explicit characterization of the foreign exchange 'marketplace'. The same interpretation is suggested by the fact that the market is conceptualized deliberately more often as (organized and fair) sports than as (volatile and destructive) war and that this picture is reversed for implicit conceptualizations of the market.

The finding that the machine metaphor occurs least frequently both in explicit and in implicit metaphorical conceptions of the market contradicts academic models of the market and orthodox economics, which are both governed by mechanistic metaphors (see Hodgson, 1993; McCloskey, 1995), with specific events producing specific reactions which can be expressed by mathematical equations. In contrast to the academic models, the dominant implicit metaphors in interviewees' spontaneous and intuitive discourse of the foreign exchange market are the market as a living being, as an ocean and as war. Organic and interactive metaphors, and not the machine metaphor, thus dominate participants' subjective experience of the foreign exchange market. This finding also supports the suggestion that biology might be an alternative, and more suitable, metaphor for economics (Hodgson, 1993).

Conclusion

This study has portrayed the foreign exchange market not as an economic given, but as a human construction which emerges from the shared understandings of market participants. Metaphors express these understandings of the market, communicating collective 'realities' in which individual conceptions of the market and resulting decisions are embedded. Through metaphorical entailment, the market's constitutive elements are integrated into an experiential whole. This helps to reduce the experienced complexity and to make coherent sense of ongoing events in the market.

Our research provides market participants with a tool for reflecting on their experience and actions in the financial markets. It points out, for example, that the rationality of a certain trading decision may not depend as much on abstract notions of expected utility and mathematical probabilities as it may be rooted in a particular market metaphor. In a market understood as war, for instance, rational behaviour looks different from rational behaviour in a market understood as bazaar. Regarding investment strategies, Gray (1997) observes that some investors wrongly respond to the current 'crisis of complexity' with continued efforts to measure and calculate. However, such efforts often only heighten the complexity and do not necessarily offer a better

understanding. In contrast, our research has taken up Gray's suggestion of finding metaphors and to qualitatively elaborate on them.

Moreover, metaphor analysis may lead to a deeper understanding of the economic differentiation of market participants according to chartist/technical versus fundamentalist forecasting styles⁸ (Frankel & Froot, 1986). These different approaches to forecasting might correlate with different psychological and metaphorical understandings of the market's nature, such as in the analytical forecasting of a machine's output versus the experience-based foreseeing of an ocean's tides. A systematic analysis of how guiding market metaphors influence approaches in anticipating the market might deepen our understanding of market forecasting beyond the rudimentary distinction between fundamentalists and chartists.

Interpretations of market processes by the financial news media and by financial analysts may also depend on underlying metaphorical understandings of the market. Attributing an exchange rate drop to a switch in market sentiment is based on a different metaphorical understanding (i.e. the market as a living being) than ascribing the same drop as an automatic reaction to changed interest rates or to low unemployment figures (the market as a machine). Underlying metaphorical conceptions may thus lead to entirely different patterns of understanding and explanation of the financial markets.

One limitation of our study is that it could not systematically take multiple group memberships into account. Market participants' repertoires of metaphors may depend on a multitude of social group memberships and social identities. For example, since women are severely under-represented among foreign exchange professionals, and also in our sample of market participants, the role played by war metaphors may be generally more expressive of a male culture than specifically of foreign exchange market participants. Similarly, the largely competitive and winning-oriented characteristics of the market as sports metaphorical domain may be generic to the way men are socialized, independent of their participation in the financial markets.

The metaphors resulting from our analysis are strongly gendered and indicate that language about the foreign exchange market may predominantly reflect male rather than female experience. In addition to supporting a discourse of male dominance in the markets, the gendered nature of market language may even represent a way of excluding women from this area. Along with their discursive power to name, metaphors also have an inherent capacity to exclude (Altman, 1990), and in the financial markets this capacity might serve to strengthen male in-groups.

Moving beyond gender, further research could also investigate other group differences in participants' discourse about financial markets. While the present exploratory research included different kinds of market decision makers (central bankers, commercial and investment bankers, financial journalists) in four different European trading centres, the overall small number of interviews has not allowed the systematic comparison of gender, professional, cultural and geographical subgroups. Such comparisons could shed more light on political uses and consequences of metaphors which have surfaced in the discussion of metaphorical entailment. Yet another important dimension in metaphorical understandings of the foreign exchange market that future research might address is the issue of time. Similar to the witnessed shifts in market participant's attention to different macroeconomic indicators (Frankel & Froot, 1990), dominant market metaphors may

⁸Fundamentalists predict exchange rates by analysing the underlying economic conditions upon which they assume changes in exchange rates rest. Chartists, in contrast, study only the exchange rate movements themselves and believe that the history of previous data provides indicators for future exchange rates.

change over time, possibly indicating a consequential dynamics of change in the conceptualization of the market by its participants. Finally, evidence of different metaphor usage in deliberate and implicit conversational contexts suggests that further studies could explore contexts and conditions associated with different market metaphors and different market practices in an even more comprehensive and systematic way.

In summary, metaphor analysis is a valuable tool for approaching market participants' understandings of financial markets. The main metaphorical fields of the foreign exchange market as a bazaar, as a machine, as gambling, as sports, as war, as a living being and as an ocean, all reflect unique rationalities of the market, leading to metaphorical entailments which may also suggest diverse principles of thinking and of acting in the market. Furthermore, our finding that organic and not mechanistic metaphors dominate market practitioners' discourse about the market clearly indicates the need for novel ways of understanding and interpreting financial market behaviour.

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