Seven Ways to Knit Your Portfolio

Is Investor Communication Neutral?

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Seven Ways to Knit Your Portfolio: Is Investor Communication Neutral?

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Abstract

The concept of familiarity has been used in finance theory to explain apparent paradoxes in people's behavior, such as the home bias in portfolio choices. This study investigates whether (lack of) familiarity with the language of financial consumers may contribute to an explanation of the well-documented gender gap in financial decision-making. Using an interdisciplinary framework that combines insights from Behavioral Economics, Finance, Social Psychology and Applied Linguistics, we analyze the metaphors used in websites that target beginning retail investors in three different languages; Dutch, Italian and English. We find that in all three languages the metaphors used come from the same conceptual domains; namely, war, health, physical activity, game, farming and the five senses. As these domains refer to worlds that are predominantly masculine, we conclude that the language used to address financial consumers may give rise to feelings of familiarity and belonging among men, while creating feelings of distance and non-belonging among women.

Keywords: familiarity, gender gap, investor behavior, financial communication, cognitive metaphor theory

> It's only natural that it will strike some as strange that an inn located in Italian territory should have a German name, but that is easily explained when we remember that most of the guests who come here are Austrians and Germans who like *to feel at home* [emphasis added].
>
> (José Saramago, *The Elephant's Journey*, 2010)

Introduction[1]

Marketing practice and research finds that *words* influence consumers' attitudes and behavior through creating conceptual associations that may have a different impact on men and women. For instance, while women liked Diet Coke from the start (1983), the Coca Cola Company managed to get men to consume its zero-calorie cola only after introducing Coca Cola Zero (2005). As Jill Avery points out (2012), the word "diet" evokes associations with a stereotypical woman's world --where she is overly concerned with her looks and physical attractiveness-- whereas the word "zero" evokes associations with a stereotypical man's world --where he is strong, tough, has quantitative skills and is a black and white thinker. In discussing the concept of gender branding applied to the world of diet beverages, Avery maintains that, for years, Coca Cola failed to entice men to consume Diet Coke as, even though there was a practical need for men to drink lower-calorie soda, "men couldn't bridge the gap image wise without a new brand and product just for them" (Nobel, 2013, p. 1)[2]. And it finally happened with the introduction of Coca Cola Zero in 2005. Whereas in the area of non-financial consumer products, gendered branding is common, in the area of financial products it is seldom found.[3] The latter can be explained by several factors.

[2] Gendered branding is the marketing of separate lines of branded products for men and women in many categories, even in cases where their functions are essentially the same.
[3] Marketers in the consumer industry are well aware that subtle changes in wording can affect consumer behavior in a gender specific way and, as a consequence, use it to reach out (and sell products) to their specific target groups.

First of all, the household, not the individual, was traditionally the relevant unit for saving, investing and insurance decisions. Then, finance theory assumes a unitary financial consumer (Donni and Chiappori, 2011; Chiappori, 2013). Finally, the financial industry is required to meet several demands from the law and financial supervisors when it comes to providing guidance and suggestions for investors. These demands do not take financial consumers' biases and

heterogeneities into account, other than through asking financial consumers about their risk attitudes and financial expertise. Starting from this premise, this study investigates whether the language used in communication with financial consumers is likely to create feelings of belonging or distance depending on whether the receiver is a man or a woman. We regard this research as a necessary step towards analyzing whether investor language may be nonneutral in that it has a gender specific effect on financial interest, stock market participation and risk taking of men and women. If that were the case, this language bias could contribute to explaining the gender gap in financial attitudes and decision-making. In this paper we present the results of a linguistic analysis of the texts that potential investors get to read. The focus is not on the comprehensibility of these texts (rational view), but on the psychological effect that the metaphoric expressions used may have on readers.

Economists have well documented that men and women exhibit different financial behavior. It is a fact that women participate less in the stock market than men, and if they do, they take less risk. This gender gap in financial decision-making is generally explained as due to differences in risk tolerance (i.e. women are more risk averse than men when it comes to portfolio choices) [4] and financial literacy (i.e. women are less literate than men when it comes to finance).[5] Not just academic research but also financial industry studies find a gender gap in financial attitudes and behavior. The 2013 Wells Fargo's "Affluent Women Retirement Study," for instance,

finds that only 8% of women say they feel extremely confident when it comes to investing compared to 49% of women that say they feel somewhat confident and 41% of women that say they feel not al all confident when it comes to investing.[6] Similarly, a research report published by the Merrill Lynch Wealth Management Institute in 2013 finds that 27% of men and 55% of women think they know less than the average investor about financial markets and investing.[7]

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[4] For an overview of the evidence that risk attitudes vary with gender see Barber and Odean (2001), Croson and Gneezy (2009) and Dohmen et al. (2011).

[5] For an overview of the evidence that women have lower scores on financial literacy tests than men see Lusardi and Mitchell (2008), Guiso et al. (2008), Fornero and Monticone (2011), van Rooij et al. 2011 and Bucher-Koenen et al. (2012). Instead, for an overview of the evidence of a gender gap in measured and self-assessed financial literacy see Eckel and Grossman (2002), Van Rooij et al. 2007 and Arano et al. (2010).

[6] This study by Wells Fargo is a survey among women aged between 40 and 69 with household investable assets of $ 250,000 and over.

[7] This research report is based on a study of 11,500 investors.

However, research in finance as well as other disciplines, most notably psychology and behavioral economics, suggests that gender gaps in risk attitudes and literacy may be only a *partial* explanation of the gender gap in financial decision-making. For this reason, this study proposes a *complementary* explanation which focuses on whether the above-mentioned gender gap can be explained by differences not only in knowledge and risk preferences, but also in the degree to which men and women identify with the language used in the financial field. It goes without saying that explaining the gender gap in financial decision-making is not merely of academic interest. It is of fundamental importance in a world in which financial risk is shifted toward individuals, labor market participation of women increases, and women (need to) rely more and more on themselves financially. As a matter of fact, the OECD has recently called for reducing the gender gap and creating financial inclusion of women, a plea supported by the G-20 Ministers of Finance and Central Bank Governors in July 2013, and the G-20 Leaders in September 2013 (OECD, 2013a; European Commission/G20, 2013).

Theoretical background

Thus, the main research question of this study asks whether the gender gap in financial decision-making can *also* be explained by the degree to which men and women identify with the language spoken in the financial domain. The answer to this question is grounded in three main theoretical frameworks; namely, familiarity and investing, affect heuristic and cognitive metaphor theory.

The concept of *familiarity* is not new in finance, as it has been used as an explanation for some stylized facts in investment behavior. For instance, it has been used by Huberman (2001) to explain why investors hold much more stocks of companies from their home country (i.e. they invest in familiar stocks), diversifying less than would be optimal according to finance theory. This so-called investor home bias has not disappeared with developments in ICT and with the removal of institutional barriers, such as capital controls. Its strong and pervasive influence on investment decisions takes different shapes. Indeed, there is a home country bias, with investors not diversifying enough internationally (Merton 1987 and French and Poterba 1991), but there is also a regional bias within countries, with investors holding an excessive percentage of their portfolio in stocks of companies operating at a regional and even local level (Coval and Moskowitz, 1999; Huberman, 2001), an industry bias, with employees overinvesting an excessive percentage of their portfolio in stocks of companies in the industry they work in even after the Enron scandal (Doskeland and Hvide, 2011), and even an employer bias for pension savings, with employees holding a too large fraction of their pension wealth in their employers' stocks (Laibson, 2005). Along similar lines, Prast *et al* (2013, 2014), study whether the gender gap in stock market participation and risk taking is influenced by familiarity with the companies most traded in the

stock market, which are mainly heavy industries. Assuming that women are more exposed to advertisements in women's magazines than men, they construct a "pink" index and study whether the gender gap differ according to whether participants are allocated to the pink, or to the traditional stock market ("blue") condition. They find that in the blue condition it takes women three times as long to decide as men, while in the pink condition women decide more quickly, and that women aged 60 and over take more risk in the pink than in the blue condition. So, people definitely prefer to invest in the familiar.

Generally speaking, the psychological mechanism underlying the effect of familiarity can be found in social psychology research and has been defined as *affect heuristic*. It is the psychological phenomenon –a sort of mental short-cut - that behaves as a first and fast response mechanism in decision-making, no matter the type of decision one has to make.[8] People have swift and instinctive emotional responses (or *affects*) in a risky environment, instead of, or in addition to, logical ones. Whereas positive *affect* decreases perceived risk, negative *affect* increases it (Zajonc 1968, 1980). Moreover, in the context of investor decision-making there at least two additional effects. The first one is that positive (negative) affect, besides decreasing (increasing) perceived risk, also leads to a higher (lower) estimate of return (Alhakami and Slovic, 1994). The second additional effect, Heath and Tversky (1991) find that people prefer to bet on their own judgment in a context where they feel competent, where their "feeling of competence is enhanced by […] familiarity", and, in turn, familiarity results in less ambiguity aversion, that is to say a preference for gambles with known probabilities over gambles with ambiguous probabilities (Ellsberg, 1961; Merton, 1987; Boyle *et al*, 2013; Dimmock *et al*, 2013). Thus, one can conclude that, as far as investment behavior is concerned, "familiarity" very often creates a positive affect which, as Huberman maintains, may explain why "people invest in the familiar while often ignoring the principles of portfolio theory" (Huberman 2001, p.?).

The existing economic studies into the role of familiarity in influencing investor behavior focus on the effect of *geographical* (i.e. physical) closeness. This is not surprising as the aim has always been to explain the different shapes taken the investor's home bias. This study hypothesizes that preference for the *familiar* could manifest itself also through language. If words evoke metaphorical associations that create *psychological* closeness, they may have an impact on

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[8] In cognitive psychology**,** "heuristics" are simple, efficient rules which people often use to form judgments and make decisions. In a nutshell, they are mental shortcuts that usually involve focusing on one aspect of a complex problem and ignoring others.

investor behavior in a similar way as geographical closeness. The Diet Coke vs Coca Cola Zero example mentioned in the Introduction demonstrates that language is indeed very powerful in creating feelings of familiarity or exclusion, with conceptual associations playing an important role. Drawing on cognitive metaphor theory, this study investigates the possibility that the language used in investor communication evokes a sense of familiarity for one of the genders, but not for the other.

The conceptual theory of metaphors was first spelled out by George Lakoff and Michael Johnson's seminal work *Metaphors We Live By* (1980) and it has since become the standard in linguistic metaphor research. *Conceptual metaphor theory* rejects the notion that metaphors – and figures of speech in general—are mere decorative devices, peripheral to language and thought. On the contrary, this theory holds that metaphors are central to thought. As a matter of fact, language --and metaphors in particular—is what makes our thoughts or conceptual systems visible. Particularly in abstract fields, such as Finance, people use, often unconsciously, metaphors to make concepts and actions "imaginable," more vivid and thus easier to understand. Simply put, the classical cognitive view on metaphors maintains that a metaphor is a conceptual phenomenon that is realized at the surface level of language. As the etymology of "metaphor" (from the Greek verb μεταφέρειν that means 'to carry across') suggests, metaphors are words and expressions transferred from one conceptual domain (or conceptual system or frame) to another. Technically speaking, as Figure 1 illustrates, a certain (abstract) domain, INVESTING, "borrows" words from a certain (concrete) source domain, WAR, in order to turn an abstract concept or experience (investing) into a more "imaginable" one (war). To put it another way, there are two main roles for the conceptual domains posited in conceptual metaphors: 1) *source domain*: the conceptual domain from which we draw metaphorical expressions (e.g. INVESTING IS *WAR*); 2) *target domain*: the conceptual domain that we try to understand (e.g. *IINVESTING* IS WAR).

Figure 1. Structure of a conceptual metaphor.
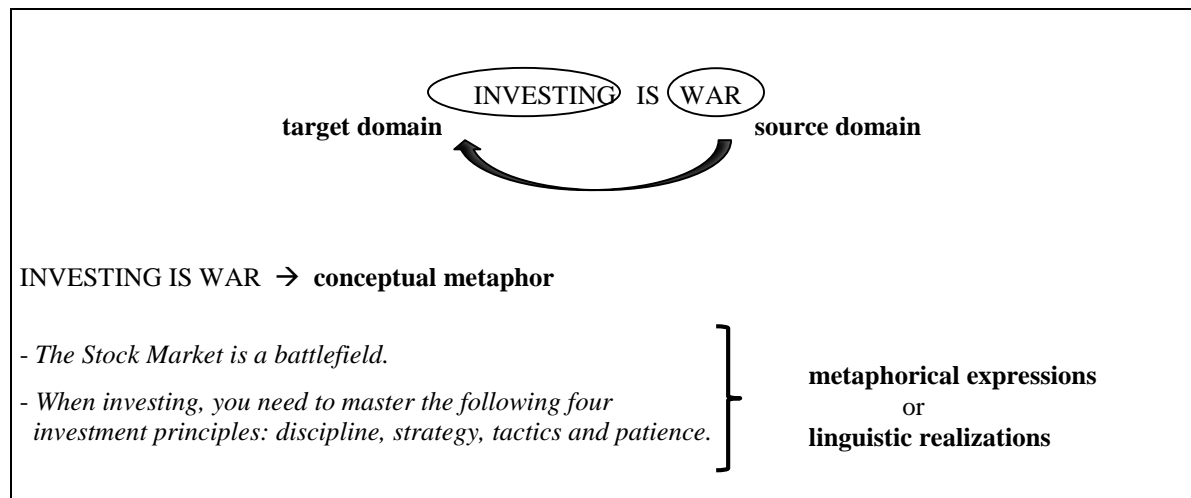
INVESTING IS WAR is an example of conceptual metaphor and, as such, may result in many different realizations at the surface level of language (i.e. linguistic realizations or, more commonly, metaphorical expressions) such as "the Stock Market is a battlefield" and "When investing, you need to master the following four principles: discipline, strategy, tactics and patience." What follows are examples, in the three languages analyzed in this study, that is Dutch, Italian and (British) English, of general investor language regularly used in authoritative financial newspapers. […]

Financieel Dagblad, October 24, 2014 (p. 21)
- Shortsellers verslaan … [Shortsellers just barely beat the market]
- … het niet veel beter dan de markt. [Hendfunds do not perform better than the market]
- … [Investors who go short on a stock, gamble on the fall of shares]
- … [Parties who go short aim to profit from the backfall of a stock relative to the market]
- … [They sell funds whom they expect to do better]

Il Sole 24 Ore, October 16, 2014 (p. 46)
- Un terzo circa della capitalizzazione di Borsa del titolo XXX spazzato in qualche ora. [About one third of XXX's market capitalization swept away in just few hours]
- Il titolo YYY sta facendo molti feriti sul campo di una battaglia che resta incerta. [Stock YYY is leaving many wounded soldiers on the battlefield of a combat whose outcome is still uncertain]
- Il titolo ZZZ ha dato fuoco alle polveri sui mercati. [Stock ZZZ sparked off rebellion on the markets]
- Il titolo XXX è caduto come un sasso all'avvio delle contrattazioni bruciando il 29% del valore. [Stock XXX fell like a log at the start of trading burning 29% of its value]
- L'operazione potrebbe ancora farsi ma lo scenario più cupo è prevalente. [The transaction could still be carried out but a gloomy scenario prevails]

Financial Times, October 28, 2014 (p. 23)

- Energy stocks were hit by further falls for crude prices.
- There was an air of caution among participants.
- The XXX fell 0.6 per cent as an early rally for bank shares ran into a wave of profit-taking.
- Italian stocks lagged behind sharply with the FTSE MIB falling 2.4 per cent.
- Shares in YYY tumbled more than 20 per cent.

Examples of studies analyzing metaphors in Economics and Business are Boers and Demecheleer (1997), who find that the metaphors used in *The Economist*, *Business Week*, *The Financial Times*, and *Fortune* and come from the source domains journey, health, war, mechanics, gardening, and food, and Koller (2004) who finds that in mergers and acquisitions texts evolutionary struggle metaphors prevail, while Guo (2013) concludes that the metaphors used in the Chinese media coverage of the acquisition by Geely's of Volvo come from the source domains marriage, journey, health, and war.[9] Morris *et al* (2005) study the occurrence and effect of metaphors used by stock market commentators. They distinguish between *agent* metaphors and *object* metaphors. Agent metaphors describe stock price movements in terms of an action – the result of an intention. Examples mentioned by Morris *et al* are "the Dow fought its way upward," and "the S&P dove like a hawk." Object metaphors, on the other hand, describe stock price movements as the result of an external physical force: "the Nasdaq dropped off a cliff," "the S&P bounced back." They find that the use of these metaphors is not random, with agent metaphors used more often when the stock market went up. Moreover, they find that metaphor use affects investor expectations: agent metaphors increase the probability that investors expect a stock price trend to continue.[10]

Metaphors are important because they evoke conceptual domains (frames), that is schema of interpretation, collections of anecdotes and stereotypes, which individuals rely on to understand and respond to events (Goffman, 1975). To illustrate how metaphors evoke conceptual associations (Lakoff 1990; Lakoff and Johnson 2008), let us compare the metaphorical expressions "asset building" and "asset growth." They both express relevant, but quite different aspects of an increase in wealth. "Asset building" evokes associations with the conceptual domain of physical constructions, design, heavy physical labor, and maintenance. By contrast, "asset growth" evokes associations with the conceptual domain of sowing and planting, plowing and caring, and the dependence on weather conditions. As such, the effects of conceptual metaphors

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[9] Chen (2013) discovers a relationship between the way a language encodes time, and the inter-temporal decision making of its speakers. Liang *et al* (2014) find a relationship between the language a company uses in its annual report, and its efforts at corporate social responsibility.

[10] Although not applied in our study, it is worth mentioning that another common way of categorizing verbal metaphors is by distinguishing living metaphors from dead and moribund metaphors (Lakoff and Johnson 1980; Lakoff and Turner 1989; Müller 2008).

are not limited to the evocation of images; they may guide expectations and acts of those who hear them (Ferraro et al, 2005). In our example, "building assets" may steer the readers' viewpoint towards working according to a plan in the direction of a clearly envisioned result whereas "growing assets" may steer the readers' viewpoint towards patiently awaiting a less predictable result. Conceptual metaphors can thus construct readers' representations of reality, but from there, they can also pave the ways in which readers shape their realities. They evoke particular ways of seeing the world and, thus, different ways of possible behavior in social and organizational aspects of the world (Barrett et al 1995 and Cornelissen et al 2011). Going back to the proposed example, "building" could make users think that planning and acting are called for and unavoidable, while "growing" could make users think that caring and waiting are the way to go whereas active intervening is risky and to be avoided. The opposite is also true: if their represented reality seems unfamiliar, conceptual metaphors may steer users away from part of (economic) reality (Oberleichner et al 2004). Last but not least, the above example also shows, the carrying across of words from one conceptual domain to the other, inevitably make some aspect of reality (the concept or action it is meant to describe) vivid, concrete, with the result of "hiding" other aspects of that same reality. Depending on, for instance, the receiver's social identity, they may therefore create feelings of familiarity and belonging or distance, in other words they may create a language bias.

3. Methodology

We analyze the language used in websites that address financial consumers who are looking for information on how to start investing, make an inventory of the metaphors used, apply metaphor analysis to categorize the metaphors according to their source domain, and discuss whether these could create feelings of belonging or distance depending on the gender of the reader, and therefore may contribute to a gender difference in investment attitudes and behavior through the channel of familiarity.

Before turning to the methodology we have used in our study, it is useful to devote a few lines to (the detection of) metaphors. In order to be able to quantify (types of) metaphors in (large) written and spoken texts, it is important to have a rigorous "objective" method. This is also important if one wants to compare findings across different languages. Since researchers may differ in their intuitions about what constitutes a metaphoric expression, it is important that they have explicit criteria for categorization, especially if they analyze different texts in different languages, and even more so if they want to compare findings across different languages. In this paper, we analyze three short texts in three different languages, and the composition of our

research team --including our research assistants-- was such that for each text at least three of us were able to compare the findings and create a common inventory.[11]

We selected three website targeting beginning retail investors, from different languages: Italian, Dutch, and English. These languages have in common that they are European, but they have different origins: Romance (Italian) vs. West Germanic (Dutch, English). English is a *lingua franca* (Crystal 2003), that is, as a common means of communication among speakers of different first languages. By the way, these languages also differ in the gender system of their grammar, which has been measured based on various indices, which are then used to measure their affect on labor market and political participation of women (Gay et al, 2013; Santacreu et al, 2013). We should point out, however, that the purpose of this paper is NOT to compare and analyze differences between the languages. Rather, we focus on similarities: can metaphors used in investor communication in different languages be traced back to similar source domains?

The texts were taken from the following websites:

- Italian: *Investire in borsa – corso pratico per principianti*

  (http://www.windoweb.it/dossier/investire_in_borsa/guadagnare_in_borsa_1.htm)
- Dutch: *Beleggen voor beginners* (http://www.beleggenvoorbeginners.org/)
- English: *The beginner's guide to investment* (http://www.which.co.uk/money/savings-and-investments/guides/the-beginners-guide-to-investment/)

The above websites were chosen for a number of reasons. First, as our ultimate goal is to study a potential effect of investor language on stock market participation and risk taking of men and women, we need to study the texts that potential investors get to read. Ideally, we should of course analyze all media in order to analyze investment language encountered by all financial consumers, not merely the visitors of beginning investor websites, which is already a biased group. However, this was not feasible, and beginning investor websites is second-best as they constitute a "portal" target in an audience of financial consumers who do not yet invest in the stock market. Second, these sites score highest on Google when searching, in each language, for a combination of the words indicating "beginner" and "investment". Third, being beginner's guide to investment, they

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[11] This research strategy is only possible for a small text sizes like the ones we chose to study. In future work analyzing larger bodies of text we will need to apply the metaphor identification procedure developed by the Pragglejaz group (Steen, 2007).

try to avoid the highly specialized vocabulary of the field as much as they can. Finally, the sites are more or less comparable length-wise, and content-wise they give beginning investors similar guidelines. In total, it is an admittedly limited corpus but worthwhile as a starting point, since, to our knowledge, there are no existing corpora about the language of investment.[12]

As our starting point in the analysis, we adopted the methodology of Steen's (2004) guideline for identifying metaphorically used words and concepts: "Check whether words referring to entities, properties of entities, or relations between entities in the text world do so literally, that is, directly, or whether they (can) invoke another, especially more concrete or typical, domain of usage." Note that the etymology of words is interesting in this respect, but not decisive. For instance, the word "capital" is etymologically related to the classical Latin noun "caput" which means "head," the most important part of the body; but since its common domain of use is now the economic context, we have not identified it as a metaphor. Interestingly, by the way, is that the Dutch use the word *hoofdsom* to indicate the sum of money invested, or lent, without the accrual of interest, where *hoofd* means *head* and *sum* means amount.

The procedure of analysis was as follows. First, the complete text of the three websites mentioned above was downloaded. Then, parts of the website recognizable as advertisements or news stories were omitted. Subsequently, the remainder of each text was scrutinized for words referring to entities, properties of entities, or relations between entities in the text world from domains of usage that are not literally intended, but invoke the domain of usage of financial investing; these words were identified as metaphors. Each individual case of a metaphor (metaphorical expression or linguistic realization) was reported as such and noted with its immediate context (surrounding words) and with its domain of use. In the process of metaphor identification, we used conceptual domains of the abovementioned sources as our guides, such as war, physical activity, game, health, farming and the five senses. All authors of this paper have near native fluency in English, two are native speakers of Dutch, two are native speakers of Italian and one is fluent in Italian. As for the three research assistants, they also are fluent in at least two of the three languages. This made it possible to have each text examined by at least two authors. The analysts compared the metaphors found and on that basis, distinguished a closed set of overarching source domains to be used to categorize the metaphors found in the investment texts. The complete analyses were checked with a second analyst, and all cases of differences in

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[12] Corpora (sing. corpus) are the object of analysis of Corpus Linguistics, a method of carrying out linguistic analyses. A "corpus" is a collection of texts (both written and spoken) involving authentic cases of language use as it occurs in the 'real world' which is electronically stored and available to be sampled and analyzed.

metaphor identification or categorization, the interpretation was discussed until agreement was reached, so that the metaphor identification is the result of shared analysis.

4. Findings

Table 1 presents an overview of the most frequent metaphors found in the beginner's investment web texts.[13]

Table 1. Summary statistics.

	Dutch	**Italian**	**English**
Number of words used in full text	6,023	3,761	3,735
Number of different metaphors found	45	35	39
10 most frequently used metaphors (with frequency of their linguistic realizations)	goed/slecht doen [*to do well/bad*] (19) stijgen/dalen *[rise/*fall] (11) turbo/sprinter (11) spreiding/spreid [*dispersion/to spread*] (10) verlies [*loss*] (8) winst [*profit*] (8) partij [*party*] (8) hefboom [*leverage*] (6) doel/doelstelling [*target*] (5) moeilijk/makkelijk [difficult/easy] (5)	scendere/salire [*rise/fall*] (23) andare bene/male [*to do well/bad*] (17) oscillazione/oscillare [*fluctuation/fluctuate*] (7) sano/malato [*healthy/*ill] (7) tranquillo/nervoso [*calm/nervous*] (6) reazione/reagire [*reaction/to react*] (4) armi/armare [*arms/to arm*] (2) centrare/mancare *[to hit/to miss]* (2) correre un rischio [*to run a risk*] (2) giocare [*to play*] (2)	rise/fall (24) grow/growth (16) lump sum (14) protection/to be protected (12) to spread (10) fluctuation (8) loss (6) to be good/bad (4) impact (4) step (in) (3)

[13] A full list of metaphors as well as their categorization into source domain can be obtained from the authors.

Table 1 shows that while some metaphors appear in the top ten for all three languages (e.g. "rise/fall," words and phrases expressing upward and downward movements of quantities of money), there are also differences between the languages (e.g. (1) there are significantly more metaphors belonging to the source domain of "war" in the Dutch and English texts than in the Italian one; (2) neither the Dutch nor the Italian texts contain "growth" metaphors but there are 16 of them in the English text). The analysis of the similarities and differences would be interesting in itself (apart from the gender familiarity issue), but it is not the subject of this paper. Still, we would like to draw attention to the fact that although the Dutch text contains many more words than the Italian and English texts, the number of metaphors is larger in the Italian and English texts than in the Dutch text.

After having identified the metaphors used, we proceeded in allocating them to a source domain (see previous section for methodology). We found that the majority of metaphors can be allocated to one of six different source domains: (1) PHYSICAL ACTIVITY: movement (i.e. going fast/slow or up/down) vs. (de)construction (i.e. building or destroying); (2) HEALTH (including well-being, illness and death); (3) WAR (i.e. conflict), (4) GAME: play (i.e. games with rules) vs. chance (i.e. risk, gambling), FARMING, and the FIVE SENSES.

**Table 2. Frequent metaphors in the three languages, by source domain.**

	Dutch	**Italian**	**English**
Most frequently used metaphors by source domain (with frequency)	PHYSICAL ACTIVITY: - stijgen/dalen (11) - turbo/sprinter (11) - spreiding/spreid (10) - heefboom [*leverage*] (6) HEALTH: - *goed/slecht* doen (19) - moeilijk/makkelijk [difficult/easy] (5) WAR: - verlies (8) - winst (8) - partij (8) - doel/doelstelling (5) GAME: - gambling (4) FARMING: - opbrengst [*yield*] (1)	PHYSICAL ACTIVITY: - salire/scendere (23) - oscillazione/oscillare (7) HEALTH: - andare bene/male *to do well/bad* (17) - sano/malato (7) - tranquillo/nervoso (6) WAR: - reazione/reagire (4) - armi/armare (2) - centrare/mancare (2) GAME: - correre un rischio (2) - giocare (2) FARMING: - dare i frutti [*to yield benefits*] (1)	PHYSICAL ACTIVITY: - rise/fall (24) - to spread (10) - fluctuation (8) - step (in) (3) HEALTH: - to be good/bad (4) WAR: - protection/to be protected (12) - loss (6) - impact (4) GAME: - to beat st/sm (2) FARMING: - growth/grow (16)

Frequencies of all metaphors for each of the above source domains are given in Table 3 and graphically presented in Figure 2.

Table 3. Metaphors by source domain, absolutes and proportions.

Language

Source domains	Dutch	Italian	English
Physical Activity	58 (41 %)	36 (39%)	69 (47%)
speed/motion	*31*	*34*	*44*
(de)construction	27	2	25
Health/Well-being	30 (21%)	33 (36%)	17 (11%)
War/Conflict	36 (25%)	10 (11%)	24 (16%)
Game (*play/chance*)	12 (9 %)	9 (10%)	4 (3%)
Farming	2 (1 %)	1 (1%)	32 (22%)
Senses	4 (3%)	3 (3%)	2 (1%)
Total	142 (100%)	92 (100%)	148 (100%)

Figure 2. Metaphors according to source domains, percentages per language, adding up to 100 for each language.
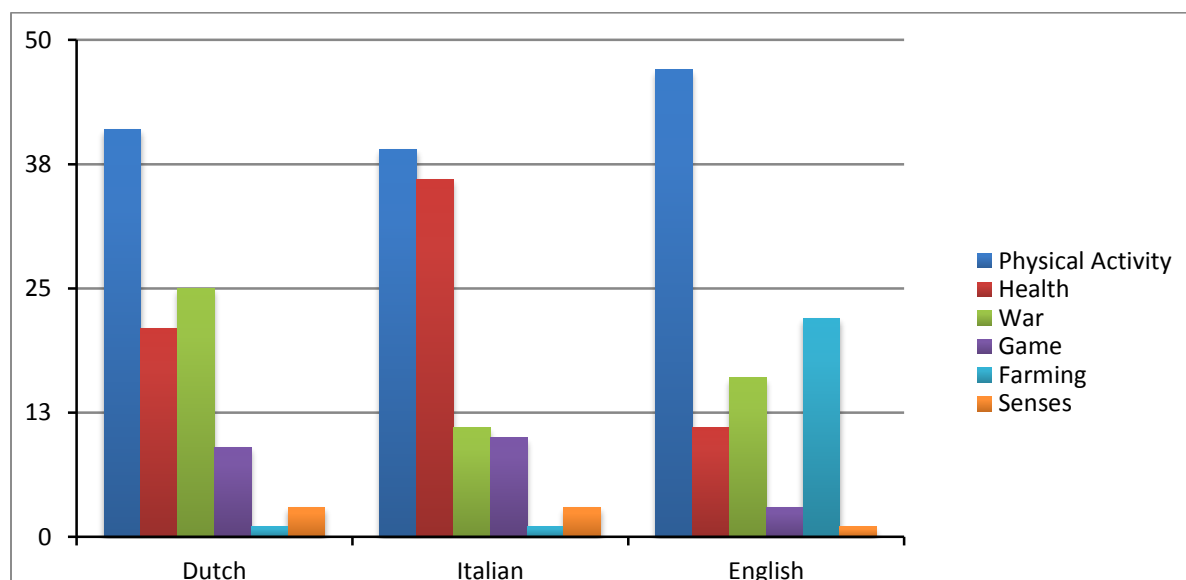
From a first inspection of the data given in Tables 1 through 3, several things stand out. First, the source domains of the metaphors are the same in all three languages. Second, some of these

domains are similar to the ones found in metaphor analysis of business texts (see Section 4) notably WAR and HEALTH, while others are not. While in business texts MARRIAGE is a frequent metaphor, it is absent in the texts we analyzed, most likely because business texts often talk about mergers and acquisitions between/of companies, whereas our texts address financial consumers.

Even though the categorization of the source domains according to their familiarity to men and women requires additional research, our results allow us to make some first comments based on the source domains of the most frequent metaphors. How should we categorize PHYSICAL ACTIVITY, HEALTH, WAR, GAME, FARMING and the FIVE SENSES based on their gender familiarity? We decided to take as a reference point of our categorization the Bem Sex-Role Inventory (Bem 1974), a still widely used instrument in measuring gender role perceptions. To give only an example, according to the BSRI, women are assumed to be understanding, caring and loving whereas men are assumed to be competitive, willing to fight and take risks.[14] Since the year it was published, decades have passed in which gender roles have changed. Nevertheless, a study published in 1998 concluded that the BSRI was still valid (Holt and Ellis, 1998). It can therefore be safely assumed that, despite trends toward egalitarianism in Western societies, in the 21st century essential imagery and metaphorical framing are still different between women and men.

Our first guess, therefore, was that PHYSICAL ACTIVITY, WAR and GAME are source domains that correspond to worlds that feel more familiar to men than to women. Also the decision to consider HEALTH, FARMING and the FIVE SENSES as source domains that are in a neutral –rather than feminine--position regarding gender was made with an eye on the BSRI.

Further linguistic evidence confirmed our decision. After examining linguistic research into the language of health and illness, we realized that, despite the large body of empirical research that supports the popular belief that there's a lack of expressiveness in relation to men's physical and emotional health issues, Charteris-Black and Seale (2010) have recently demonstrated that both men and women talk about their health issues. What *is* different are the ways – both at a grammatical and lexical level-- in which men and women talk about their health issues (Seymour-Smith *et al* 2002). This, however, is not relevant for our present study. The same decision was taken in relation to the source domain SENSES. There are few sensory metaphors in our corpus but they appear in all three texts (and thus languages). An obvious question is whether the domain

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[14] The Bem Sex-Role Inventory (BSRI) is a questionnaire created by American psychologist Sandra Bem in 1974 in an effort to measure psychological androgyny and provide empirical evidence to show the advantage of a shared masculine and feminine personality versus a sex-typed categorization. The test is formatted with 60 different personality traits (i.e. adjectives). Participants rate themselves on each trait based on a 7 point-scale. Traits are evenly dispersed, 20 masculine, 20 feminine, and 20 filler traits thought to be gender neutral.

of the FIVE SENSES should be considered an neutral or a feminine domain. An argument for the latter option could be that, generally, women are considered more "sensitive" than men, and that they "feel" more than men. However, linguistic evidence underscores that sensory metaphors are universally used (i.e. used across families of languages and cultures), as they are more memorable than their semantic analogues (Akpinar and Berger, 2015). This is due to their higher sensory nature and associative cues (e.g. "a cold person" is more memorable than "an unfriendly person", see Sadoski *et al.*, 1993). Moreover, as Akpinar and Berger (2015) have demonstrated, given the basic nature of sensory experience, sensory metaphors provide a common ground for social interaction inasmuch as referring to universally shared human experiences –those of the five senses-- strengthens social bonds, enhances conversation flow, and fosters the exchange of ideas among people, independently of their gender. In conclusion, our categorization does not include a source domain women identify more with than men. This implies the number of metaphors found according to their familiarity to each gender, for each of the three languages separately illustrated in Table 4.

Table 4. Metaphors according to their gender familiarity based on the BSRI, proportions.

<div align="center">Language</div>

Familiarity Source domain	Dutch			Italian			English		
	F	M	N	F	M	N	F	M	N
PHYSICAL ACTIVITY		41			39			47	
HEALTH			21			36			11
WAR		25			11			16	
GAME		9			10			3	
FARMING			1			1			22
SENSES	3			3			2		
Total	3	75	25	3	60	40	2	66	34

F: Feminine source domain
M: Masculine source domain
N: Neutral source domain

Figure 2. Distribution of metaphors over masculine and neutral source domains.
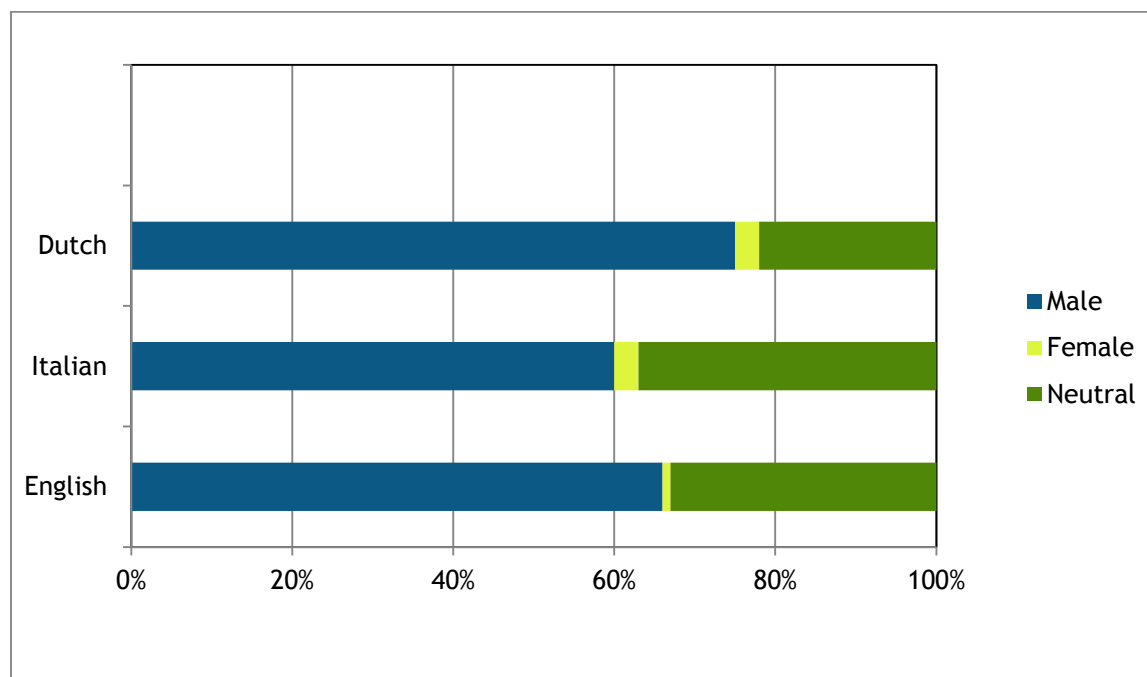
Based on Table 4 and accepting a source domain classification based on the BSRI is valid to determine the "familiarity" of source domains -- and hence metaphors to each of the genders-- the conclusion should be that the majority of these metaphors come from worlds familiar to men and boys, not women and girls. In this respect it should be noted that our source domain "physical activity" refers to activities that require a lot of physical strength, something in which men clearly outperform women – evidence by separate competition in sports events for men and women, and the fact that the Championship match between men is considered more important than that between women, the former being scheduled as the final –and concluding-- event of a tournament (e.g. the women's final at Wimbledon is on Saturday, the men's one on Sunday). There is a slight difference between the three languages, with more masculine and less neutral source domains in Italian with respect to Dutch and English as Figure 2 shows.

A predominance of metaphors from masculine source domains comes as no surprise. Providing financially for the family has been a masculine endeavor from the start. Financial

markets and institutions have in the past been literally a man's world, and with the family as the key unit of decision making when it comes to life cycle saving and investing, a predominance of masculine metaphors would not be surprising. Still, in our view, using merely the BSRI to categorize the source domains according to whether they belong more to the world of men or women is not enough to draw final conclusions on whether the language spoken in websites addressing beginning investors contributes to the gender gap in stock market participation and risk taking. Follow up research should shed more light on this. In this respect we are taking various routes in order to be able to identify objectively the degree of femininity/masculinity/neutrality of the source domains resulting from our metaphor analysis. To this end, we will 1) analyze occupational patters of men and women in the five domains found in the three countries analyzed here, 2) ask in each country a sample representative for the population how likely they think it is that men/women are active in each of these five domains, 3) detect implicit associations of men and women with these domains using implicit association tests[15], and 4) doing experiments to analyze which metaphors men and women use when they talk about (saving for) retirement. Moreover, in order to draw final conclusions we also need to compare metaphor used in the financial industry with that used in industries where we do not find a gender gap in decision-making and participation, or in industries that are mainly targeting women. As our final purpose is to assess whether the gender stereotype (masculinity) of the metaphors' source domains may have an impact on attitudes and behavior, we will design

"feminine" counterparts and carry out experiments where participants are randomly selected into either the traditional or the alternative condition. In the selection of counterparts and in the analysis of the impact it will be necessary to pay attention to whether they are agent or object, and alive-moribund- dead. Otherwise, it may not be possible to draw conclusions as the metaphors may differ in more than one (masculine/feminine source domain) aspect.

5. Discussion

Our findings indicate that in the three languages studied –Dutch, English and Italian-- metaphorical expressions in investor communication come from the same source domains, and that these domains are, in the metaphorical sense, more masculine than feminine. This is not to say that men like to go to war, or even that they have actually served in the military, and that

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[15] The IAT is designed by Harvard Business School, see https://implicit.harvard.edu/implicit

women, on the other hand, do not like sports or are not interested in heavy physical activity. Rather, the metaphors evoke images of worlds that are, or were, populated more by men than by women, or worlds and activities that are (perhaps unconsciously) considered to be more appropriate for, or more likely to carried out by, men than by women - just as the word "diet" evokes images of a world to which men feel they do not or should not belong, even though men *are* interested in the way they look. Being part of System 1 way of thinking, this is not a conscious process, but unconscious, automatic, based on gender stereotypes that we have been grown up with. What is more, people are (linguists excluded, perhaps) unaware of the fact that the metaphorical expression "building your portfolio" is not neutral - until we realize that "knitting your portfolio" sounds, well, different.[16]

Some may argue that the source domain of the metaphors in investor communication is the result, not one of the causes of the gender gap in financial attitudes and decision-making. And indeed, our finding that the metaphors in the language of investment come from domains that are associated more with men than with women is not surprising. The financial sector has always been a man's world, and in the not-too distant past, women worked only if they did not have a spouse, or the spouse did have no or insufficient income. Up until the 1960s, it was common for women to be fired as soon as they got married, and that a woman's signature did not have contractual value.[17] In the past, sons, not daughters, inherited the family's fortune, the one investment decision made by upper class women was choosing (or rather, being chosen by) a wealthy husband. The man used to be the only or main income earner and investment decisions, if any, were taken at the household, not individual level. Even finance theory usually assumes a unitary financial consumer (Donni and Chiappori 2011; Chiappori 2013; for a critical review, see Attanasio and Weber 2010). Research into differences in financial planning preferences within the family is of a recent date (Chiappori 2013; Browning *et al* 2014). This may also explain why *gender marketing*, so common for most consumer products is virtually absent for *financial* products and services.

Be that as it may, the world has changed, and due to socio-demographics, labor market

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[16] In this paper we merely address the question whether investor language may, through its metaphors, discourage women from financial participation and risk taking. We do not discuss whether, if so, these metaphors should be replaced by ones coming from feminine source domains. Some women may feel that feminine metaphors should not be used because they would affirm women's stereotypical roles. Others argue that stereotypical feminine activities are belittled precisely *because* women are regarded as inferior. Serano (2007) argues that contemporary culture "assigns negative connotations to, or trivializes, behaviours understood to be feminine such as gossiping, behaving emotionally or decorating", and criticizes the view that women's interest in aesthetics is "intended solely to entice or attract men". This would be in line with the fact that even high educated men with top positions are – to put it mildly - not at all ashamed to admit that they like watching soccer (EU) or American football (US), and that on Google "soccer victim" is a person whose nose was broken by a soccer ball at a concert by Rod Stewart, while "fashion victim" is a woman who changes her wardrobe too often.

[17] For the Netherlands, the latter was the case until 1957.

participation and changes in social security, men and women need to take care of their financial future both as individuals and as household members. Hence, even if the language used in investor communication is the result of the financial sector historically being a man's world, it should not be a (psychological) barrier to the financial inclusion of women. Moreover, it cannot be excluded that the metaphors used push men towards more risk taking than it is actually in line with their true preferences. In fact, Brighenti and Lucarelli (2013) conclude that both men and women make risky decisions that are not in line with their actual preferences as measured through their skin reactions: men are less, and women more risk tolerant than it is suggested by their self-declared attitudes and their actual decisions.

Further research is needed to verify whether the metaphors in investor communication are indeed non-neutral. This needs to be done by comparing the effect of masculine metaphors with their feminine and neutral counterparts. It is something we are currently working on, using methods from Social Psychology (e.g. implicit association tests), Linguistics (analysis of spoken language in focus groups), Economics (surveys and lab experiments) and physiological reactions. In this respect it should be noted that Avery (2012) and Nobel (2013) find that men tend to avoid anything they perceive as feminine. It may be wise for them to do so, given that doing anything associated with femininity would harm their status (much more than a woman's status is hurt if she engages in stereotypical masculine activities). Moreover, expanding the sources analyzed, from investor websites to all media, is required to get a full grasp of the potential effect of language, through familiarity, on men and women's financial attitudes and behavior.

6. Summary and conclusions

This paper finds that the overwhelming majority of the metaphors in retail investor communication come from masculine source domains. Through various channels this may affect attitudes and behavior differently among men and women. The metaphors could result in feelings of familiarity and belonging among men, and trigger their propensity to risk taking, and not among women. Affect heuristic could be at work, inducing positive affect among men and negative affect among women, thus leading to lower risk perception and higher expected return among men, while increasing perceived risk and reducing expected return among women. It could therefore be that the language used in investor communication, through its metaphorical associations, contributes to explaining the gender gap in financial attitudes and behavior (stock market participation, portfolio risk taking). However, further research is required to substantiate this claim. Our main findings also indicate that the metaphors in investor communication, apart

from their masculine features, come from source domains that are identical across the three languages studied here. This underscores that the use of metaphors in investor communication is not random.

Our analysis suggests that comparing the effects of the masculine metaphors found on financial attitudes and behavior of both men and women with their feminine counterparts is worthwhile. If a different impact on attitudes and behavior were found, this would have several implications. Depending on the effects found, it could imply that investor language is non-neutral and, hence, it may affect attitudes and decisions. If the effects differ between men and women, metaphor analysis could contribute to explaining the gender gap in financial attitudes and decision-making. It would imply not only that financial markets are actually not a gender level playing field, but also that investor communication may bias people, both men and women or one of the genders, toward making decisions that are not in line with their true preferences. Given the importance given by policymakers to help investors make adequate decisions (see, for instance, Mifid rules), this would have implications for an evaluation of current investor protection policies.

Finally, further research should reveal whether taking into account the effect of metaphors could promote financial inclusion of women. With more pension risk transferred to individuals, increased and increasing labor market participation by women, and an increasing need for women to manage their own wealth and take care of their own financial security in retirement (as a result of divorce and reduction of survivors' benefits), the need for understanding how to effectively reach and include all financial consumers is extremely important and has practical relevance not only for policy makers and financial sector supervisors and regulators, but also for the financial industry.

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