A proposed value function for private clients.

A value function for private clients that assumes a different shape from that developed by Kahneman and Tversky

Propuesta de una función de valoración para clientes de banca privada. Una función de valor para clientes con grandes patrimonios y un perfil diferente al desarrollado por Kahneman y Tversky

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ABSTRACT This paper aims to check if the value function identified by Kahneman and Tversky can also be considered valid for private investors. To this purpose, we selected two investors samples, «private» and «retail», and created a questionnaire for testing for: *a)* the tendency to preserve status quo; *b)* the perception of gains and losses, and *c)* the existence of mental accounts. Based on the results obtained we demonstrated that private investors perceive changes in wealth differently from retail investors. We tested that the main aim for private investors is to maintain the initial level of high wealth (*status quo*) and improve it over the time while for retail investors the priority is to increase their low initial level of wealth in every economic scenario. So the results obtained enable us to identify and describe a value function for private clients, a new shape of value function which expresses in the best possible way private clients' financial behaviour.

KEYWORDS Value function; Private clients; Perception of gains and losses; Status quo; Mental accounts.

RESUMEN El artículo trata de comprobar si la función de valor identificada por Kahneman y Tversky puede considerarse también válida para inversores de banca privada. Para tal fin hemos seleccionado dos muestras de inversores, «de banca privada» y «de banca minorista», a los que hemos administrado un cuestionario para probar: *a)* la tendencia a conservar el status quo; *b)* la percepción relativa de las ganancias y las pérdidas, y *c)* la existencia de particiones en su patrimonio a efectos de la gestión. A partir de los resultados obtenidos demostramos que los inversores de banca privada perciben los cambios en su riqueza de forma diferente a los inversores minoristas. Hemos comprobado que el objetivo principal de los inversores de banca privada es el mantenimiento de su alto nivel inicial de riqueza (status quo) con el fin de mejorarlo con el tiempo, mientras que lo prioritario para inversores minoristas es incrementar su bajo nivel inicial de riqueza en cualquier escenario económico. De esta manera los resultados obtenidos nos permiten identificar y describir una función de valor para los clientes de banca privada, con un perfil nuevo que expresa de la mejor manera posible el comportamiento financiero de este tipo de clientes.

PALABRAS CLAVE Función de valor; Clientes de banca privada; Percepción de las ganancias y las pérdidas; Status quo; Particiones del patrimonio a efectos de gestión.

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INTRODUCTION

Every year Capgemini-Merrill Lynch Global Wealth Management and Pricewaterhouse-Coopers publish their wealth reports, with the aim of examining and better understanding trends characterizing «private» clients. According to the definitions used in these reports a «private» investor has:

a) a large amount of wealth in financial assets (minimum US$ 500,000.00);

b) a high lifestyle, e.g. a person who spends a lot on spa treatment, fitness equipment, preventive medical procedures and also on luxury travel, and

c) sophisticated needs in terms of diversification of asset allocation, including real estate, luxury collectibles (e.g. luxury cars, boats, jets), artworks, passion investment (e.g. jewellery, gems, watches, coins, memorabilia).

In contrast, we can consider as «retail» or «affluent» clients those who do not have these three characteristics; in this paper we consider as retail clients those with a maximum of € 500,000.00 worth of assets under management, and «private» clients as those with more than € 500,000.00 asset under management [(1)].

In literature many authors (Weber, 1834; Fechner, 1860; Khneman and Tversky, 1984; Khaneman and Knetsch, 1992; Levin, Gaeth and Schreiber, 2002; Kahneman, 2003) have considered how people made decision in financial setting too. Tversky and Kahneman, 1981; Chen, Monroe, Lou, 1998; Gourville, 1998; Sinha and Smith, 2000; Levin, Gaeth and Schreiber, 2002; Del Vecchio, Krishnan and Smith, 2007; McKechnie, Devlin, Ennew and Smith, 2007 have investigated how the framing effect could influence the decision process. Grewal and Marmorstein, 1994; Gourville, 1998; Kahneman, 2000a, 2000b; Mellers, 2000; DelVecchio, 2005; DelVecchio, Krishnan and Smith, 2007; McKechnie, Devlin, Ennew and Smith, 2007 have examined the incoherence of judgment expressed faced with similar or indifference situation. Others (Kahneman and Tversky, 1979; Olsen, 1997a, 1997b) have examined how is possible for investors a shift from «risk-adverse» to «risk-seeking» and viceversa. However, in literature anyone has taken into consideration the distinction between private and retail investors.

The aim of this paper is to check whether the Kahneman and Tversky value function characteristics can also be considered valid for private investors or, if not, whether it is possible to identify another specific value function. To this purpose we contacted some European Financial Advisers (EFAs) [(2)] in order to:

a) ask for some information about their clients (private and retail), especially with reference to their average wealth, as so to create formal, specific and coherent questionnaires, and

b) ask for their cooperation in delivering the questionnaires to some of their private and retail clients. The identification of a specific value function for private clients

(1) In accordance with the mentioned reports we have considered only financial assets. We have not considered real estate or other forms of asset investing.

(2) €FPA is the largest professional and educational organization for financial planners and financial advisors in Europe and is the only Financial Planning Association created solely in the interest of European financial planning consumers and practitioners. In this paper we considered the Italian branch: www.efpa-italia.it

could be a valid support for advisers in terms of better client relationships, better understanding of how they think, and for improving their portfolio in terms of asset allocation.

The paper is organized as follows: Section 1 presents a brief summary of behavioral literature related to the value function and investors' behavior; Section 2 presents the methodology for collecting data and the results obtained; Section 3, based on the answers obtained, describes a new shape of value function specifically related to wealthy investors, and therefore called «value function for private clients'; Section 4 presents the main conclusions; the Appendix contains the samples details and the questionnaires used.

1. LITERATURE REVIEW

Classical economic theory avoids analysing the psychological sphere of investors, as it considers the so-called *homo œconomicus* as a perfectly rational entity in every situation. In reality, human behaviour often tends to be very far from this entity; this fact should not be ignored but rather analyzed and possibly incorporated into economic models in order to then be able to manage the consequences. Irrational behaviour is revealed through empirical psychological evidence of individuals' ways of thinking in conditions of uncertainty (Raiffa, 1968; Kahneman and Tversky, 1979). A plethora of experiments specifically designed to describe how decisions are made in an economic and financial setting (e.g. Thaler, 1991; Kahneman and Knetsch, 1992), confirm that the subjective perception of what is deemed fair in an economic transaction does not depend only on objective figures, but is always biased by a framework of reference (Kahneman and Tversky, 1984) affected by the magnitude of stimuli and the perceived subjective intensity of sensation (Weber's law and Weber, 1834; Fechner, 1860; Deco, Scarano and Soto-Faraco, 2007). This is the «framing effect» (Kahneman, 2003; Levin, Gaeth and Schreiber, 2002) whose influence on investors, and also on financial planners (Roszkowski and Snelbecker, 1990), can cause a shift from «risk-adverse» to «risk-seeking» and viceversa (Kanheman and Tversky, 1979; Olsen, 1997a, 1997b).

The decisions taken by investors can also be affected by the level of superficiality or accuracy guiding decision-making; scholars distinguish between intuition and reasoning (Kahneman and Frederick, 2002; Frederick and Fishhoff, 1998; Sloman, 1996; Stanovich 1999; Stanovich and West, 2000; Kahneman, 2003). Operations performed intuitively are fast, automatic, mentally effortless, associative and difficult to control, while those performed by reasoning are slower, serial, mentally tiring and deliberately controlled [(3)], and it is therefore natural that the former often have the upper hand with respect to the latter.

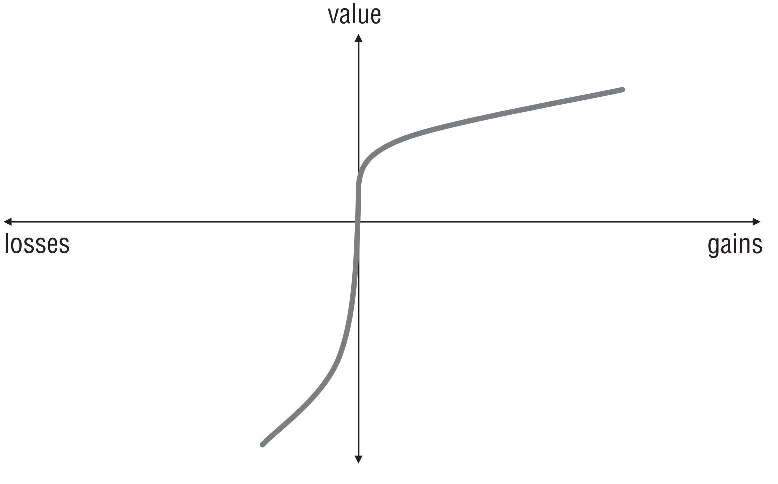
The psychological approach in finance highlights two further important aspects to be taken into account in the analysis of investors' behaviour:

(3) The test performed by Frederick (1998) to show the difference between intuition and reasoning poses the following question: a baseball bat and a ball cost 1 dollar and 10 cents altogether. The bat costs 1 dollar more than the ball. How much does the ball cost? If you answer «10 cents», you are grouped with almost all the respondents for the original experiment. The answer is intuitive, because 1 dollar and 10 cents are easily separable in our minds. Unfortunately, this is not the right answer; in fact, the ball costs 5 cents and the baseball 1 dollar and 5 cents, otherwise the total would be 1 dollar and 20 cents.

a) Tversky and Kahneman (1984) argue that investors decide by mentally referring to their status quo (i.e. the current level of wellbeing). In any situation in which it risks being altered, the decisionmaking procedure is adjusted (Tversky and Kahneman, 1981; Sonnemans, Schram and Offerman, 1994) in order to keep it almost the same (Kahneman and Tversky, 1979), and

b) in their «prospect theory», Kahneman and Tversky (1979) laid down the principle that the utility accruing to investors does not depend on the final level of achieved wealth but on its variations. Therefore individuals' choices are always made considering the gains and losses compared with an initial starting capital (reference point). In addition, the absolute value perceived of losses appears to be more consistent in comparison to that of earnings of the same amount («loss aversion», Kahneman and Tversky, 1979, 1984); in fact, it has been empirically proven (Kahneman, Knetsch and Tahler, 1991; Tversky and Kahneman, 1992) that the distress experienced on losing a sum of money is almost twice that of the pleasure associated with gaining the same amount. Based on these assumptions, in their prospect theory Kahneman and Tversky (1979) argue that investors' behaviour can be traced by the value function shown in Figure 1, which has the following features: 1. it is defined in terms of deviations from a reference point; 2. it is generally concave on the profit side and convex on the loss side, and 3. it is steeper for losses than for gains.

FIGURE 1
THE VALUE FUNCTION



Source: D. Kahneman and A. Tversky. 1979. «Prospect Theory: an analysis of decision under risk». In *Econometrica*, 47, pp. 263-291.

The initial level of wealth is different between private and retail clients, as express above, the former have a higher level than the second. Bearing in mind that the initial level of wealth is the reference point to express a judgment in wealth variation, it is logical forecast that the perceive changes in wealth differently between private and retail investors. For this reason, hypothetically, two different value function could be exist. This paper tends to demonstrate this hypothesis.

2 – PRIVATE vs. RETAIL CLIENTS: DATA

Procedure

Using the EFA database [4], during the first three months of 2009 we contacted approx. 100 financial advisers and asked if they were willing to forward the questionnaires we had prepared (see Appendix) to some of their private and retail clients (in particular we asked each EFA to contact at least two private and two retail investors so as to obtain a minimum of 400 questionnaires answered). The questionnaire, delivered to investors in a closed envelope, was anonymous, only age, sex, geographical provenance (north/central, south) and the amount of asset under management being required fields; it was very simple, comprising only two pages of multiple-choice questions. We decided to let the samples answer alone in their own homes so as to receive uninfluenced answers (Grewall, Marmorstein and Sharma, 1996), and gave them three days to return the questionnaire either to their financial advisers or directly to us, recommending in both cases the use of a sealed envelope.

The questions

The questions in the questionnaire were designed taking inspiration from the examples and experiments discussed in the literature (i.e. Kahneman and Tversky, 1979, 1984; Kahneman, Knetsch and Thaler, 1991; Ricciardi and Simon 2000; DelVecchio, Krishnan and Smith, 2007; DelVecchio, 2005). In particular we focused our investigation on the level of perception of gains and losses starting from an initial amount of wealth, and the status quo tendency. One question was also intended to verify the existence of so-called «mental accounts» (Thaler, 1985, 1991, 1999) and whether they operate differently in private and retail clients. In order to ask questions consistent with the goals of this paper, we asked advisers to give a prior indication of the average asset under management of their private and retail clients. The information obtained allowed us to design questions for a hypothetical private investor with € 2,200,000.00 average asset under management, and his/her hypothetical retail counterpart with about € 400,000.00 average asset under management. In the formulation of the questions we bore in mind the fact that semantic cues (McKechnie, Devlin, Ennew and Smith, 2007; Li, Sun and Wang, 2007; Li and Xie, 2006; Berkowitz and Walton, 1980; Lichtenstein, Burton and Karson, 1991; Liefeld and Heslop, 1985) can influence or alter answers. For this reason when possible we used neutral semantic cues and scenario questions that do not present any probability so to avoid the «one stage» or «two stage» problems (Thaler and Johnson, 1990). In this way each question follows a linear programme model (Wallace, 2000) with the aim of not creating any gamble element in the investors' minds. The questions cover two main factors. One is the message framing (gain *vs.* loss) and the other is status quo preservation.

(4) EFAdatabase is a list of advisers operating in Italy as independent advisers or private bankers for several banks and financial institution. In this database you can check the advisor's details and the name of the financial institution they are working for.

The sample

Of all questionnaires returned (about 500), we rejected those without any indication of asset under management. The others were used to identify two groups of sample investors: the first group comprised 100 Italian retail clients (m = 85, f = 15), aged between 40 and 60 years old and with, on average, € 381,800.00 asset under management. To create this sample we considered the questionnaires with all questions answered. The second sample was created considering the investors who answered that they held at least € 2,000,000.00 asset under management. This was necessary for processing answers coherent with the questions submitted and with the aims of this paper. The second sample comprised 85 private Italian clients (m = 73, f = 12), aged between 40 and 60 years old and having, on average, € 2,305,882.35 asset under management.

Most investors in both samples (80%) live in northern/central Italy. This was to be expected in view of the fact that GDP per capita in northern/central Italy is greater than that in the south [(5)] and thus it is logical to assume that the number of private clients is greater in northern/central Italy than in the south.

Results

The private sample was asked to express a degree of «satisfaction» or «dissatisfaction» as concerned an achieved performance, first in terms of percentage (+10%) and then in terms of absolute value (+ € 220,000 [(6)]). Note that we did not express any start valuation parameter, so investors could express their real degree of satisfaction/dissatisfaction bearing in mind their wealth. The same questions were presented first in the case of a loss in absolute value, and then quantified in a -10% loss. The results are shown in table 1.

Table 1

Satisfaction as perceived by private clients in terms of profit (on the left) and losses (on the right)

Positive performance		*Negative performance*	
Bearing in mind your current level of wealth, in the case of a positive performance equal to +10% net per year, you consider yourself *		Bearing in mind your current level of wealth, in the case of a negative performance equal to -10% per year, you consider yourself **	
satisfied	55.30%	*satisfied*	56.47%
not satisfied	44.70%	*not satisfied*	43.53%
Bearing in mind your current level of wealth, in the case of a profit equal to € 220,000 Euros net per year, you consider yourself *		Bearing in mind your current level of wealth, in the case of a loss equal to € 220,000 per year, you consider yourself **	
satisfied	80%	*satisfied*	40%
not satisfied	20%	*not satisfied*	60%

Source: data questionnaires elaborated by the Author.
* € 220,000 profit is about +10% of the sample average asset under management and +10% of the hypothetical private client average asset under management.
** € 220,000 loss is -10% of the sample average asset under management and -10% of the hypothetical private client average asset under management.

(5) *Banca d'Italia, Relazione annuale* (annual report), Rome, 29.th May 2009, pp.110-111.
(6) ± € 220,000.00 is about ±10% of the sample average asset under management and +10% of the hypothetical private client average asset under management.

The same situation was presented to the retail sample, considering first a +10% performance and a € 40,000.00 (7) gain and then in the case of first a loss in absolute value, and then quantified in a -10% loss; in this case too we did not express any start valuation parameter for the above reason. The results are shown in tables 2.

TABLE 2

SATISFACTION AS PERCEIVED BY RETAIL INVESTORS IN TERMS OF PROFIT (ON THE LEFT) AND LOSSES (ON THE RIGHT)

Positive performance		*Negative performance*	
Bearing in mind your current level of wealth, in the case of a positive performance equal to +10% net per year, you consider yourself *		Bearing in mind your current level of wealth, in the case of a loss equal to € 40,000 per year, you consider yourself **	
satisfied	51%	*satisfied*	20%
not satisfied	49%	*not satisfied*	80%
Bearing in mind your current level of wealth, in the case of a profit equal to € 40,000 net per year, you consider yourself *		Bearing in mind your current level of wealth, in the case of a negative performance equal to -10% per year, you consider yourself **	
satisfied	80%	*satisfied*	55%
not satisfied	20%	*not satisfied*	45%

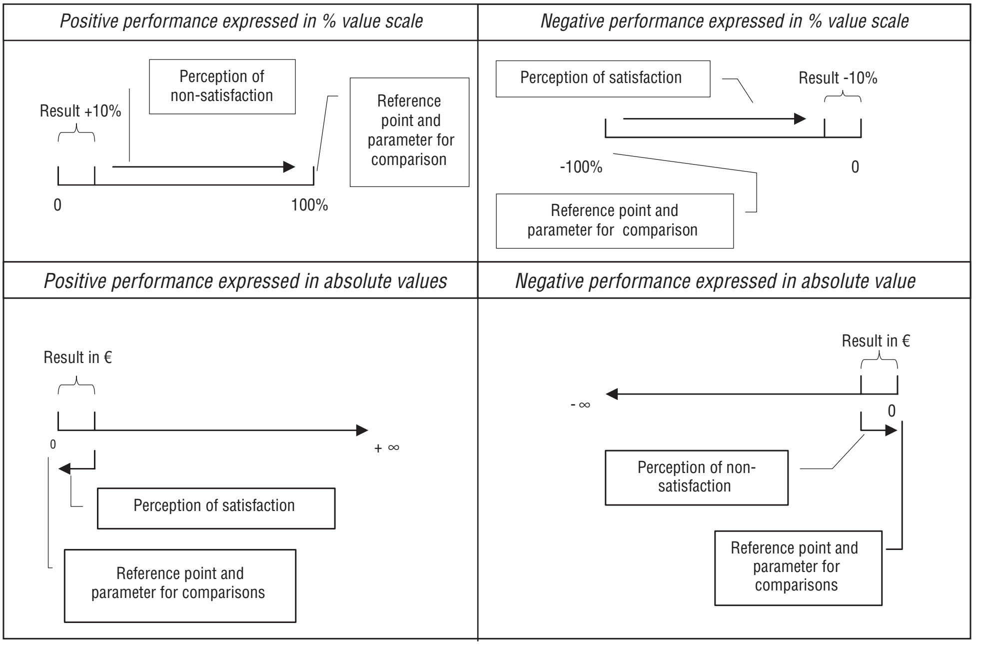
Source: data questionnaires elaborated by the Author.
* € 40,000 profit is about +10% of the sample average asset under management and +10% of the hypothetical retail client's average asset under management.
** € 40,000 loss is about -10% of the sample average asset under management and -10% of the hypothetical retail client average asset under management.

As previously demonstrated in many studies (DelVecchio, Krishnan and Smith, 2007; DelVecchio, 2005; McKechnie, Devlin, Ennew and Smith, 2007; Grewal and Marmorstein, 1994; Kahneman, 2000a, 2000b; Mellers, 2000; Gourville, 1998) our results too, individually represented in each table, show a clear incoherence of judgement, and the incongruity is common to and similar for both samples. This situation can be explained by the way the assessment parameters were presented and by the investors' internal reference point (Shirai, Bettman, 2005; Sinha, Smith, 2000; Chen, Monroe, Lou, 1998). In fact, with reference to the positive performance in percentage terms, the human mind implicitly focuses a well-defined and limited range of between 0 and +100%; +100% becomes a desirable value and a reference for all the achieved positive results. For this reason one-figure (but in many cases also two-figure) positive percentage terms leave (on average) the majority of investors dissatisfied with the performance as shown in Plan 1 – top left. On the contrary, in terms of absolute value, the positive range is from 0 to a potentially infinite maximum value and therefore it is not quantifiable and cannot be compared to an actual outcome; in this situation 0 is the only objective parameter able to render satisfactory any result that diverges positively (see Plan 1 – bottom left).

(7) ±€ 40,000.00 is about ±10% of the sample average asset under management and +10% of the hypothetical retail client average asset under management.

PLAN 1

METHOD OF PERFORMANCE PRESENTATION AND SATISFACTION PERCEIVED BY INVESTORS



Source: Author's elaboration.

However, as regards negative results, the human mind evokes a perfectly mirrored situation compared to that discussed above. When talking about losses in terms of percentage value the range is from 0 to -100%, the latter value being equivalent to losing all the invested capital, which is considered as a comparative term. Therefore it is logical to expect that any negative performance closer to 0 looks more satisfying for the investor (because he does not lose a lot, see Plan 1 – top right). On the contrary, in terms of absolute value, the range is from 0, which means «no loss in capital», and a value potentially tending to -∞, i.e. a non-quantifiable value. In this case, as shown in Plan 1 bottom right, the comparison is with 0 and any (negative) result deviating from this value makes the investor feel unsatisfied (because he perceives a loss). The reasoning above shows how people assume different reference parameters (the «anchor», Kahneman and Tversky, 1979) at their will and convenience according to the situations they have to face.

Based on the answers obtained above, we wanted to test perception of loss and gain by our samples by asking them to identify the degree of «satisfaction»/«dissatisfaction» experienced when faced with a positive/negative variation of wealth in terms of absolute value (±€ 220,000 per private sample client and ±€ 40,000 per retail sample client). The results are shown in tables 3.

Table 3

Capital gains and losses: the level of satisfaction/dissatisfaction declared by the retail sample (up side) and by the private sample (down side) and the two sample t test with equal variance

	*Bearing in mind your current level of wealth, on a scale from 0 to 10 how satisfied would you feel with a € 40,000 gain?**	*% clients*	*Bearing in mind your current level of wealth, on a scale from 0 to 10 how dissatisfied would you feel with a € 40,000 loss?**	*% clients*
Retail clients	5	48%	5	
	6	42%	6	
	7	8%	7	
	8	2%	8	
	9		9	2%
	10		10	98%

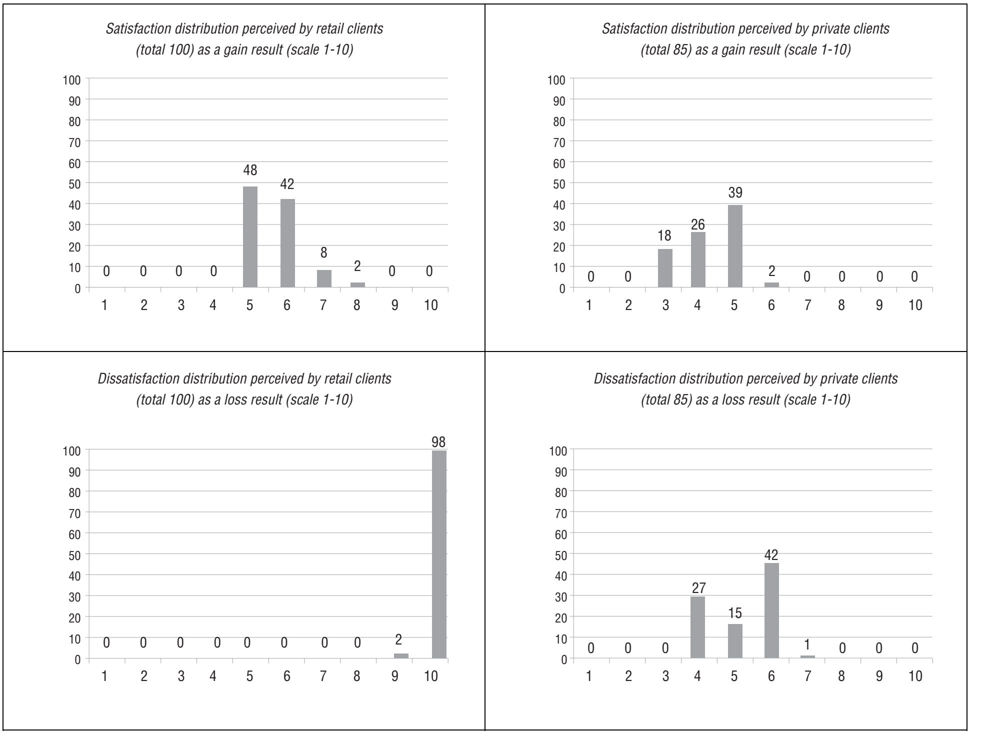
	Bearing in mind your current level of wealth, on a scale from 0 to 10 how satisfied would you feel with a € 220,000 gain?	*% clients*	*Bearing in mind your current level of wealth, on a scale from 0 to 10 how dissatisfied would you feel with a € 220,000 loss?*	*% clients*
Private clients	3	21.77%		
	4	30.59%	4	31.76%
	5	45.88%	5	17.65%
	6	2.35%	6	49.41%
			7	1.18%

	Mean retail	*Mean private*	*Diff.*
Level of satisfaction/dissatisfaction on a scale from 0 to 10 faced with a gain situation	5.64	4.29	1.34***
Level of satisfaction/dissatisfaction on a scale from 0 to 10 faced with a loss situation	9.98	5.20	4.78***

Source: data questionnaires processed by the Author.
* A € 40,000 gain/loss is ±10% of the sample average asset under management and ±10% of the hypothetical retail client average asset under management.
** A € 220,000 euro gain/ loss is about ±10% of the sample average asset under management and ±10% of the hypothetical «private» client average asset under management.
*** Is statistically significant at 1%.

Comparing the outcomes presented in tables 3 we note some important differences in the degrees of satisfaction. With reference to the retail investors sample, the empirical thesis (Kahneman, Knetsch and Tahler, 1991; Tversky and Kahneman, 1992; Kahneman, 2003), according to which the disappointment experienced on losing a sum of money appears to be about twice that of the pleasure associated with gaining the same amount, seems to be valid. In fact, the weighted average degree of satisfaction on gaining € 40,000 is 5.64, while dissatisfaction on losing the same amount is on average 9.98. Instead, with reference to the private sample, the outcome presented in table 3 seems to demonstrate that the dissatisfaction a private client experiences on losing € 220,000 does not appear to be twice the pleasure associated with gaining the same amount (gain satisfaction weighted average = 4.29 *vs.* loss dissatisfaction weighted average = 5.20). Moreover the two sample averages are statistically different for both gain and loss situations, as shown in table 3. This situation demonstrates a different perception of wealth variation between private and retail investors, as shown in figure 2.

Figure 2
Satisfaction and dissatisfaction perceived by retail clients (on the left) and private clients (on the right) in the case of gain and loss



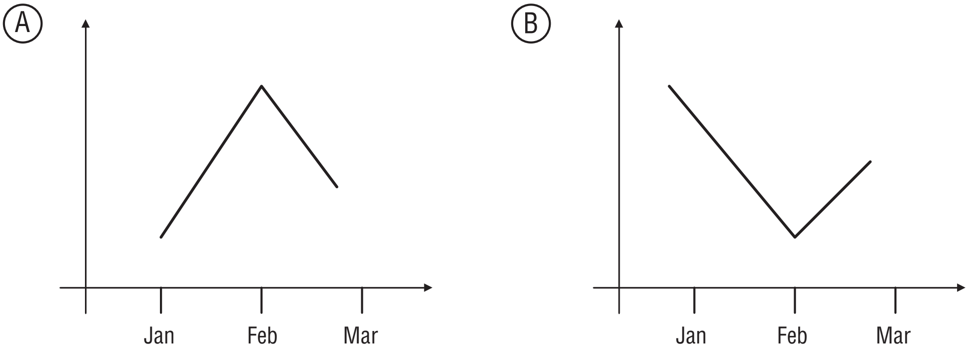
Source: data collected from the questionnaires.

Thus the Kahneman and Tversky (1979) value function, which is steeper for losses than for gains, seems to be valid for the retail sample but not for the private one. This conclusion must take into account the initial «anchor» level of wealth (Shirai, Bettman, 2005; Sinha, Smith, 2000; Kahneman and Tversky, 1979, 1984; Kahneman, 2003; Chen, Monroe, Lou, 1998) which is high for the interviewed private clients, by which economic changes are evaluated. The results therefore lead us to consider the possibility that very wealthy people could show a limited degree of indifference towards gains and losses (as shown in table 3).

The strength of anchorage and its effects were tested for by presenting our samples with the graphs shown in Figure 3, in which two antithetical situations are presented. In both cases a sum of money was invested in January. Starting from situation A, in February they observe a significant increase in investments followed by a decrease the next month, although the overall difference is still a profit if compared to the initial investment.

FIGURE 3

EXAMPLE OF TIME ANCHORS



Faced with this situation, the majority of respondents, both private and retail investors, think, «I'm losing money!» because they have moved their anchor from the initial amount up to the ideal value subsequently observed. On the other hand, situation B shows a consistent initial loss, followed by recovery of some of the investment, which is however still below the initially-invested amount in March. In such a situation (in March) our samples more typically say, «I'm losing… even if I'm regaining». This implies that in the investors' minds the starting anchor is present but they do not want to admit a mistake (i.e. regret: Festinger, 1957), so they seek a little bit of positivity by anchoring to the portfolio evaluation seen in February. This experiment, related to investment time horizons, demonstrated that an exclusive interest in the long term can turn out to be prescriptively sterile, as life is lived in the meanwhile (Kahneman, 2003), i.e. in a sum of short periods. Everyone in fact knows, either consciously or subconsciously, that he or she destines his or her money to different purposes (buying a new car the following year, buying a second house at the seaside for after retirement, etc.), each one with an implied time horizon. The fact that investors express many different needs and are used to specializing their assets implicitly for such purposes is known as «mental accounting» (Thaler, 1985, 1999), which leads to an arrangement in layers of the investment portfolio, each of these layers meeting the needs it was conceived for.

Following this theory, our samples were asked to consider their wealth as divided into two parts: the part deriving from their family (i.e. inheritance or donations) and the other part called «extra» (i.e. capital gains as well as unexpected wins). Then private investors were asked from which of the two parts they would subtract, without hesitation, € 25,000 (1.1% of the average asset under management) for philanthropic purposes. The same question was posed to the retail sample for a sum of € 500,00 (0.13% of the average asset under management), again for philanthropic purposes. The results are shown in table 4.

Table 4
Which source of money would you access for philanthropic purposes?

	Retail sample	*Private sample*
Family component	2%	8.24%
Extra component	93%	77.65%
Indifferent	5%	14.11%

Source: data questionnaires processed by the Author

It is surprising to note that there is no difference in behaviour between private and retail clients. In fact, for all respondents the «family» money has a higher emotional value than does the «extra» component; so, as Thaler (1991) says, it is proven that «some kinds of money have a bigger value». This phenomenon can be explained by the fact that everyone tends to divide his/her money into categories and handles it according to its origin, the way it has been saved and what it is intended for (Gourville and Soman, 1998). For this reason, people tend to spend money derived from unexpected gains on luxury goods more easily than the same amount of money derived from a job bonus [8].

Finally, the *status quo* tendency (Kahneman, Knetsch and Thaler, 1991) was tested for by asking our two samples to declare a maximum of two goals, distinguishing between 1.st and 2.nd, in a hypothetical bull or a bear market scenario for the next year; results are shown in tables 5. Note that in these questions, as stated at the beginning, we do not present any probabilities in order to avoid the «one stage» and «two stage» problem (Thaler and Johnson, 1990).

Focusing on the first goal given in tables 5, we observe different behaviour between the two samples. In fact for private clients the main aim is to preserve capital, both in a bearish and in a bullish market scenario. Viceversa, preserving capital is the main goal for retail clients in the case of a bearish scenario but this goal disappears in the case of a bullish scenario.

Table 5
Goals declared by private sample (up side) and by retail sample (down side) questioned for the next year (2010)

Private sample	*In the case of a bearish financial market*		*In the case of a bullish financial market*	
	1.st	*2.nd*	*1.st*	*2.nd*
Preserve the invested capital amount	83	0	58	9
Make a profit (even small)	0	6	22	10
Accept limited losses for a short period of time	2	12	0	0
Diversify by investing in physical assets, such as real estate, artworks, jewellery	0	21	5	15
Don't know	0	2	0	0
No answer	0	44	0	51

(Continue in next page)

(8) The psychological phenomenon of «mental books» is obviously contrary to the economic theory supporting money fungibility.

TABLE 5 (CONT.)
GOALS DECLARED BY PRIVATE SAMPLE (UP SIDE) AND BY RETAIL SAMPLE (DOWN SIDE) QUESTIONED FOR THE NEXT YEAR (2010)

Retail sample	*In the case of a bearish financial market*		*In the case of a bullish financial market*	
	1.st	*2.nd*	*1.st*	*2.nd*
Preserve the invested capital amount	99	0	0	99
Make a profit (even small)	0	86	91	0
Accept limited losses for a short period of time	1	4	0	0
Diversify by investing in physical assets, such as real estate, artworks, jewellery	0	10	9	1
Don't know	0	0	0	0
No answer	0	0	0	0

Source: data questionnaires processed by the Author

Thus we can declare that the status quo tendency is stronger for private clients than for retail ones. It is possible to find another difference, by observing the second goal declared. In fact retail clients expressed the aim to make a profit in both scenarios (bearish and bullish) in the hope of increasing their level of wealth. In particular it is surprising to observe (table 5) that the majority of retail clients tested expressed, as their second goal in the case of a bearish scenario, the unlikely, illfounded and probably irrational aim of making a profit. These contrasting types of behaviour are incorporated into the new value function shape.

3. DISCUSSION

From the answers obtained from our tests, we can consider some important psychological events. All investors determine a reference point for evaluating their investments' performance, but the amount of this anchor is very high for private clients. For this reason, as shown in table 3, the dissatisfaction that private clients experience in losing a sum of money does not appear to be greater than the pleasure of gaining the same amount; on the contrary it seems rational to suppose that for a limited range of wealth variation there is an area of indifference for private clients, as shown in figure 2. On the basis of these conclusions, we suppose that the value function for private clients assumes a different shape from that developed by Kahneman and Tversky (1979). Furthermore, as shown in table 5, private clients' main goal is to preserve the current level of wealth in every market scenario and increase it over time. In other words, the private clients' main aim is to ensure a constant level of status quo. By extending and generalizing, we may imagine that private investors define a positive asset threshold beyond which they will consider themselves wealthier; at the same time they define a residual level of wealth below which they would consider themselves downgraded in terms of wealth, and even become retail investors, the worst situation. The entity of status quo fluctuations is entirely subjective, so everyone will set their own value function, but with mathematically similar features. Bearing in mind the above, the value function for private clients, whose graphic shape representation is shown in figure 4 (right side), is defined in terms of «perceived value» (Y), which will depend on wealth (x), so that:

$$Y = f(x) \tag{1}$$

a) $Y = f(x)$ is defined in all real numbers, is a continuous and derivable function and is such that $f(x) > 0$ with $x > 0$ and $f(x) < 0$ with $x < 0$.

b) Y and the axes only intersect at one point, i.e. at the origin O which identifies the initial level of wealth and is also the evaluation anchor of wealth fluctuations which could ideally tend to the infinitive, so that $\lim_{x\to-\infty} f(x) = -\infty$ while $\lim_{x\to+\infty} f(x) = +\infty$ but perception levels are gradually decreasing; in fact, beyond a certain threshold of wealth or poverty, value fluctuations show a marginally decreasing tendency (Kahneman and Tversky, 1979, 1984; Ingersoll, 2008; Wakker and Tversky, 1993; Schmidt and Zank, 2001).

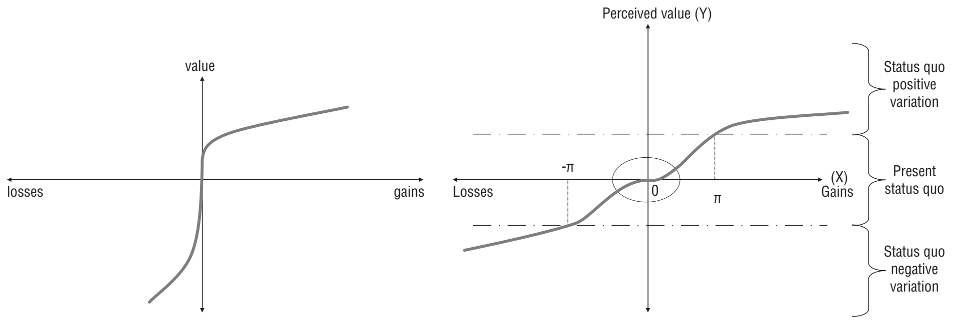
$f'(x) > 0$ with $x > 0$ while $f'(x) < 0$ with $x < 0$ so that Y, the perceived value, increases for profits and decreases within the loss area.

c) Each private client identifies a personal threshold value $x = \pi$ for profits and $x = -\pi$ for losses [(9)]. Once that threshold is reached and exceeded the status quo changes. Recalling the outcomes explained above, a non-meaningful wealth variation, either positive or negative, does not particularly alter private clients' perceptions (as shown in figure 2), so an area of indifference is identified and highlighted with a circle in figure 4.

d) The indifference area develops around an O, which becomes a point of horizontal tangency since $f'(x) = 0$ in O. This is one of the main differences from the Kahneman and Tversky (1979) value function, which instead proposes a point of vertical tangency in the origin, meaning that even a small variation —either positive or negative— from the initial level of wealth causes a high degree of satisfaction/dissatisfaction to the investor.

Figure 4

The Kahneman and Tversky value function for retail clients (on the left) and the value function for private clients (on the right): graphic comparison



Source: Author's elaboration

(9) In this paper we consider an equal variation in positive and negative wealth.

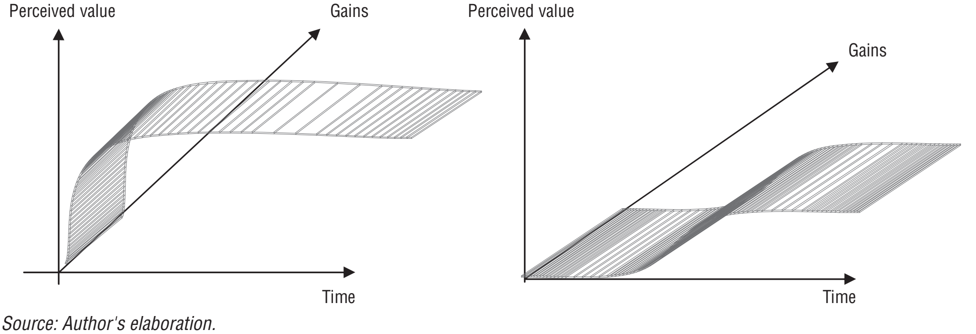
Based on what has been explained so far, the above assumption does not seem to work with reference to private clients, who are already wealthy, and who mainly and remarkably only perceive quantitatively relevant asset fluctuations, specifically those determining status quo variations. Once the new level of wealth is reached, gains and losses have a progressively decreasing perceived value. For this reason (1) shows two inflexion points, beside the O, when $x = \pi$ and $x = -\pi$, so that $f''(x) > 0$ if $0 < x < \pi$; $f''(x) < 0$ if $x > \pi$; $f''(x) < 0$ if $-\pi < x < 0$ and $f''(x) > 0$ if $x < -\pi$.

Extending the analysis to a three-dimensional graph including the time factor, it is reasonable to make a comparison between the two value functions considered in this paper, resulting in the representation given in figure 5, where only positive results are shown for reasons of simplicity. The Kahneman and Tversky value function seems to emphasize the importance of short-term performances, thus pushing investors to overlook mid-and long-term time horizons.

This hypothesis pushes investors to move their reference anchors frequently, and in most cases it leads to extreme trading operations with the aim of perceiving more satisfaction in a period that is as short as possible. Vice versa, the private value function suggests a substantial indifference to short-term results, while the greatest perceived satisfaction comes (more rationally) from relevant financial variations over a long-term time horizon.

Figure 5

Three-dimensional comparison: Kahneman and Tversky value function (on the left) *vs.* value function for private clients (on the right)



Source: Author's elaboration.

4. GENERAL CONCLUSIONS AND FUTURE RESEARCH

In this paper we demonstrate that the Kahneman and Tversky value function is valid for retail investors but it is no valid for private too. The results presented in this paper demonstrate that private and retail clients evaluate financial performance (gains and losses) in different way. This is due to the fact that they start from different initial level of wealth (anchor) which is the parameter to express their satisfaction or dissatisfaction. We also demonstrate that the psychological impact of a result expressed as an absolute value or as a percentage is significantly different. We believe this phenomenon is due to the metric range assessment which presents different anchors; this allows private clients to choose and move subjective parameters in order to avoid the negative feelings associated with admitting a mistake has been made.

Related to private investors in this paper we demonstrated the existence of an indifferent area that is to say an indifferent subjective performance level, either positive or negative, around the initial level of wealth (*status quo*), which does not alter the initial satisfaction felt before investment. In this way, the private clients' goal is clearly indicated as being that of maintaining and preserving their initial wealth level (*status quo*), while seeking to increase it over time. We demonstrated and confirmed, as Kahnemanand Tversky, that this indifferent area do not exist for retail investors because they want to achieve a better status quo improving their initial level of wealth in a short time. Based on the answers obtained from the samples tested we have detected and described a value function for private clients, for which a comparison with that of Kahneman and Tversky evidences some important differences.

The value function for private clients in particular suggests some considerations we believe should be taken into account by financial planners in order to improve their relationship with wealthy investors, as follows:

a) it is fundamental to map an investor's entire wealth with meticulous accuracy in order to identify the real (or approximate) current status quo, as the first (not necessarily declared) goal of a wealthy client will be to preserve it over time;

b) a negative change in wealth must be identified so that immediate action can be taken, in order to avoid psychological pressure on the investor. In this context a useful support can be provided by portfolio tracking software featuring appropriate warnings in the case of the need for intervention;

c) it is also important to be able to define the wealth oscillations representing «indifference», in order to identify the losses which are financially and psychologically sustainable by private clients, and

d) thus it is very important to ensure careful portfolio allocation, targeted to achieving the abovementioned goals, and to establish how much and which part of the assets may be invested with a high risk profile. These are some of the issues arising from this research, which could open up the way to further debate and interesting comparisons in future research.

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Appendix 1

The samples

Retail sample

Male = 85.

Female = 15.

Ages = 40-60.

Average age = 50.12; sd = 6.24.

Asset under management average = € 381,800.00; sd = 93.801.

Geographic zone = 80% northern/central Italy; 20% southern Italy.

Private sample

Male = 73.

Female = 12.

Ages = 40-60.

Average age = 51.73; sd = 6.17.

Asset under management average = € 2,305,882; sd = 746,616.36.

Geographic zone = 80% northern/central Italy; 20% southern Italy.

Appendix 2

The retail investors' questionnaire

Dear Investor,

This questionnaire is a tool used for research purposes to collect information about the reaction of investors in the face of possible market scenarios. The questionnaire is completely anonymous and to keep it this way we suggest you fill it in alone, in your own home and return it in a sealed envelope either to your financial planner or directly to: Andrea Lippi, c/o Università Cattolica del Sacro Cuore, Via Emilia Parmense, 84, 29100 Piacenza. Please answer truthfully. Thank you in advance for your cooperation.

Age: _______ Sex: M ☐ F ☐ Geographic area: North /Center ☐ South ☐

Please declare your assets under management (i.e. mutual funds, Sicav, asset management, shares, bonds, financial insurance)

€ __________________________

Bearing in mind your current level of wealth, in the case of a positive performance equal to +10% net per year, you would consider yourself: *(please put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind your current level of wealth, in the case of a profit equal to 40,000 Euros net per year, you would consider yourself: *(please put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind you current level of wealth, in the case of a negative performance equal to -10% per year, you would consider yourself: *(please, put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind you current level of wealth, in the case of a loss equal to 40,000 Euros per year, you would consider yourself: *(please put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind your current level of wealth on a scale from 0 to 10, how satisfied would you feel with a 40,000 Euro gain? *(Please put an X in the appropriate box).*

0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*

No satisfaction —— Low satisfaction —— Medium —— High satisfaction —— Very high satisfaction

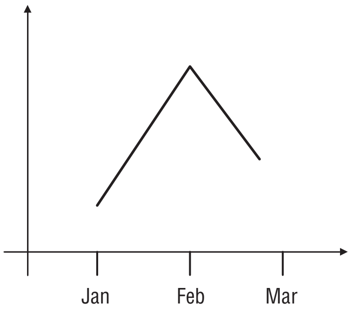
Bearing in mind your current level of wealth, on a scale from 0 to 10, how dissatisfied would you feel with a 40,000 Euro loss? *(Please put an X in the appropriate box).*

0	1	2	3	4	5	6	7	8	9	10

No satisfaction —— Low satisfaction —— Medium —— High satisfaction —— Very high satisfaction

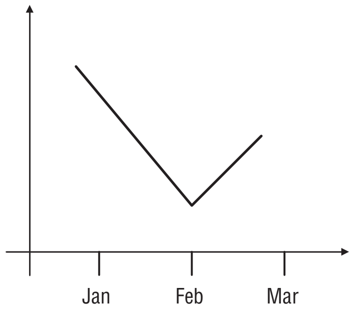
Consider the two situations below. Suppose you invested a sum of money in January and the investment value changed as in A or in B, what would your opinion of your investment be in March?

A



- ☐ «I am gaining money»
- ☐ «I am losing money»
- ☐ «I do not know/I am indifferent»

B



- ☐ «I'm gaining money»
- ☐ «I'm losing money»
- ☐ «I am losing… even if I am regaining»
- ☐ «I do not know/I am indifferent»

Please declare a maximum of two goals, distinguishing between 1.st and 2.nd, in the case of a bull or a bear market scenario for next year *(please put a maximum of two Xs, in the appropriate boxes).*

	In the case of bearish financial market		*In the case of bullish financial market*	
	1.st	*2.nd*	*1.st*	*2.nd*
Preserve the invested capital amount				
Make profit (even small)				
Accept limited losses for a short period of time				
Diversify by investing in physical assets, such as real estate, artworks, jewellery				
Don't know				

Consider your wealth in two parts: one deriving from your family (i.e. inheritance or donations) and the other as «extra» (i.e. capital gains and/or unexpected wins). From which of the two parts would you take, 500.00 Euros for philanthropic purposes without hesitation? *(Please put an X in the appropriate box).*

«Family» wealth	
«Extra» wealth	
Indifferent	

Appendix 3

The private investors' questionnaire

Dear Investor,

This questionnaire is a tool used for research purposes to collect information about the reaction of investors in the face of possible market scenarios. The questionnaire is completely anonymous and to keep it this way we suggest you fill it in alone, in your own home and return it in a sealed envelope either to your financial planner or directly to: Andrea Lippi, c/o Università Cattolica del Sacro Cuore, Via Emilia Parmense, 84, 29100 Piacenza. Please answer truthfully. Thank you in advance for your cooperation.

Age: ______ Sex: M ☐ F ☐ Geographic area: North /Center ☐ South ☐

Please declare your assets under management (i.e. mutual funds, Sicav, asset management, shares, bonds, financial insurance).

€ ________________________

Bearing in mind your current level of wealth, in the case of a positive performance equal to +10% net per year, would you consider yourself: *(please put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind your current level of wealth, in the case of a profit equal to 220,000 Euros net per year, would you consider yourself: *(please put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind you current level of wealth, in the case of a negative performance equal to -10% per year, would you consider yourself: *(please, put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind you current level of wealth, in the case of a loss equal to 220,000 Euros per year, would you consider yourself: *(Please put an X in the appropriate box).*

Satisfied	
Not satisfied	

Bearing in mind your current level of wealth on a scale from 0 to 10, how satisfied would you feel with a 220,000 Euro gain? *(Please put an X in the appropriate box).*

0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*

No satisfaction —— Low satisfaction —— Medium —— High satisfaction —— Very high satisfaction

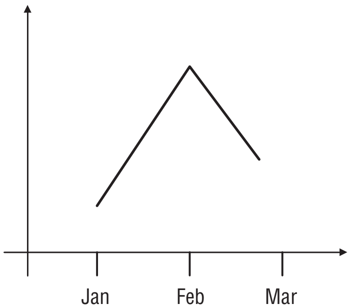
Bearing in mind your current level of wealth, on a scale from 0 to 10, how dissatisfied would you feel with a 220,000 Euro loss? *(Please put an X in the appropriate box).*

0	1	2	3	4	5	6	7	8	9	10

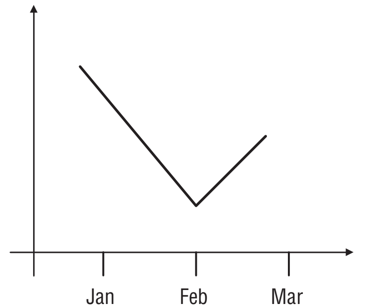
No satisfaction —— Low satisfaction —— Medium —— High satisfaction —— Very high satisfaction

Consider the two situations below. Suppose you invested a sum of money in January and the investment value changed as in A or in B, what would your opinion of your investment be in March?

A



B



- ☐ «I am gaining money»
- ☐ «I am losing money»
- ☐ «I do not know/I am indifferent»

- ☐ «I'm gaining money»
- ☐ «I'm losing money»
- ☐ «I am losing… even if I am regaining»
- ☐ «I do not know/I am indifferent»

Please declare a maximum of two goals, distinguishing between 1.st and 2.nd, in the case of a bull or a bear market scenario for next year *(please put a maximum of two Xs, in the appropriate boxes).*

	In the case of bearish financial market		*In the case of bullish financial market*	
	1.st	*2.nd*	*1.st*	*2.nd*
Preserve the invested capital amount				
Make profit (even small)				
Accept limited losses for a short period of time				
Diversify by investing in physical assets, such as real estate, artworks, jewellery				
Don't know				

Consider your wealth in two parts: one deriving from your family (i.e. inheritance or donations) and the other as «extra» (i.e. capital gains and/or unexpected wins). From which of the two parts would you take, 25,000 Euros for philanthropic purposes without hesitation? *(please put an X in the appropriate box).*

«Family» wealth	
«Extra» wealth	
Indifferent	