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Survey RiskDynametrics 2015

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Modèles Mathématiques et Économiques de la Dynamique, de l'Incertitude et des Interactions.



Survey: RiskDynaMetrics 2015

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Abstract

This survey is designed to measure the different dimensions of individual risk attitude in the context of financial investments and in the context of commuting trips.

It is used to collect online data from Ecole Polytechnique students each year since 2004. It is also used by students of other Universities in France, Italy, UK, Switzerland, Tunisia, USA, Chile, etc.

The questionnaire is currently available in French, English, Spanish and Italian. Partial versions have been developed in German and Dutch.

The contents of the English version questionnaire is described in this document.

Keywords. risk attitude, risk aversion, loss aversion, probability weightiing, ambiguity aversion, time preference, value of time, value of reliability, comfort

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About you

Men and women potentially have different levels of risk aversion. The following question is designed to validate this hypothesis in the context of financial investments.

1. You are:

- a man.
- a woman.

Numerous studies suggest that risk aversion may change with age.

2. Please indicate when you were born?

month: _____, year: _____

Your marital status may influence your investment strategies.

3. What is your marital status?

- Married with a contract.
- Married without contract.
- Living together with a contract.
- Living together without a contract.
- Divorced.
- Widowed.
- Single.

Your country of residence may modify your investment strategies because of country-specific fiscal systems. Moreover, the economic and financial situation of your country may impact your level of risk aversion.

4. What is your country of residence?

_____ (*List of all countries ISO 3166-2*)

Your reference currency is the one which comes to your mind when you consider investments. We will use it to customize the remaining part of the questionnaire.

5. What is your reference currency?

_____ (*List of all currencies ISO 4217*)

6. You expect to retire when you are...

_____ years old.

Your knowledge in investment

16. How would you rate your level of investment experience?

- Beginner
- Intermediate
- Experienced
- Highly experienced

17. In your opinion, you expect that over the next three years, the economic outlook in the country where you live will be...

- considerably better.
- slightly better
- about the same as in the last few years
- worse
- substantially worse

18. What are your main sources of information when making investment decisions?

- Friends, relatives, colleagues, business partners.
- Media: magazines, newspapers, advertisements.
- Specialized journals, investment seminars or clubs.
- Bank, brokers, financial advisors.
- Web.

19. Concerning your investment decisions, how would you evaluate the importance of being advised by a professional?

- Not important at all.
- Somewhat important.
- Important.
- Very important.

20. For how many years have you been making financial investments?

- None.
- Less than 1 year.
- 1 year.
- 2 years.
- 3 years.
- 4 years.
- 5 years.
- 5 to 10 years.
- 10 to 15 years.
- 15 to 20 years.
- 20 to 25 years.
- More than 25 years.

21. What best describes your investment attitude?

- Conservative preservation of my capital: I accept **no or very low** fluctuations of my invested assets.
- Long-term protection of my capital: **temporary** fluctuations of my invested assets are acceptable to achieve higher returns.
- Long-term growth of my capital: I accept **moderate** fluctuations of my invested assets since I expect to earn higher returns in the long run.
- Aggressive growth of my capital: I accept **considerable** fluctuations of my invested assets since I expect to earn substantially higher returns in the long run.

22. Suppose that after an initial gain, the value of your assets starts to decline. How would you react?

- I would switch my assets to a less risky investment.
- I would wait and switch my assets to a less risky investment only after a significant decline.
- I would keep my investment because I can accept short-term losses.

23. Suppose that after an initial loss, the value of one of your assets starts to increase very significantly. How would you react?

- I would sell my assets immediately to take advantage of the gain.
- I would wait and sell my assets only after a new decline, in order to avoid losing all my previous gain.
- I would keep my investment because I expect a new increase and I accept the risk to lose my previous gain, or even some capital.

Yout investor profile

Series 1: Binary returns with equal probabilities

We now consider a series of three choices (a, b, c) between hypothetical investments which differ from the ones considered in previous series. The return has now a binary distribution: high with one chance out of two, and low with one chance out of two (the high and low values are specific to each question).

Question 1a, 1b, 1c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), with one chance in two,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), with one chance in two.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y_r\%$ or $Y'_r\%$ net per year

Series 2: Binary returns with equal probabilities

We now consider a new series of three choices (a, b, c) between hypothetical investments with binary returns.

Question 2a, 2b, 2c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), with one chance in two,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), with one chance in two.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y_r\%$ or $Y'_r\%$ net per year

Series 3: Binary returns with equal probabilities

We now consider a last series of three choices (a, b, c) between hypothetical investments with binary returns.

Question 3a, 3b, 3c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), with one chance in two,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), with one chance in two.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y_r\%$ or $Y'_r\%$ net per year

Series 4: small risk of a large loss

We now consider a series of three choices between hypothetical investments. As in the previous series, each question (a, b, c) entails a risk-free investment and a risky investment. The risky investment now offers larger returns, but entails a small risk of a large loss. Returns are fixed in the three next questions, but the associated probabilities vary from one question to the next one.

Question 4a, 4b, 4c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), a probability of $P_r\%$,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), a probability of $P'_r\%$.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y_r\%$ net per year with $P_r\%$
chances

Series 5: small risk of a large loss

We now consider a new series of three choices (a, b, c) between hypothetical investments with binary returns and a small risk of a large loss.

Question 5a, 5b, 5c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), a probability of $P_r\%$,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), a probability of $P'_r\%$.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y_r\%$ net per year with $P_r\%$
chances

Series 6: Small probability of a “jackpot”

We now consider a series of three choices (a, b, c) between hypothetical investments. As in the previous series, each question (a, b, c) entails a risk-free investment and a risky investment. The risky investment now offers a small chance of a very large gain (“Jackpot”). Returns are fixed in the three next questions, but the associated probabilities vary from one question to the next one.

Question 6a, 6b, 6c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), a probability of $P_r\%$,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), a probability of $P'_r\%$.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y'_r\%$ net per year with $P'_r\%$
chances

Series 7: Small probability of a “jackpot”

We now consider a new series of three choices (a, b, c) between hypothetical investments with binary returns and a small probability of a “Jackpot”.

Question 7a, 7b, 7c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- a risk-free investment, for which your capital at the end will be X_s Euros (equivalent net annual return of $Y_s\%$) and
- a risky investment, for which your capital will be:
 - either X_r Euros (equivalent net annual return of $Y_r\%$), a probability of $P_r\%$,
 - or X'_r Euros (equivalent net annual return of $Y'_r\%$), a probability of $P'_r\%$.

At the end, the capital of this risky investment will be \bar{X} Euros in average.

Which one do you choose?

The risk-free return of — The risky return of
 $Y_s\%$ net per year $Y'_r\%$ net per year with $P'_r\%$
chances

Series 8: Intertemporal preferences

We now consider choices between different time horizons yielding different safe returns, for three different amounts.

Question 8

For each base amount M , thank you for choosing below the desired deadline.

One answer per line

INITIAL AMOUNT	1 week ($P_0\%$)	1 month ($P_1\%$)	3 month ($P_3\%$)	6 month ($P_6\%$)
M_1	$(M_1 \times P_0) \text{ €}$	$(M_1 \times P_1) \text{ €}$	$(M_1 \times P_3) \text{ €}$	$(M_1 \times P_6) \text{ €}$
M_2	$(M_2 \times P_0) \text{ €}$	$(M_2 \times P_1) \text{ €}$	$(M_2 \times P_3) \text{ €}$	$(M_2 \times P_6) \text{ €}$
M_3	$(M_3 \times P_0) \text{ €}$	$(M_3 \times P_1) \text{ €}$	$(M_3 \times P_3) \text{ €}$	$(M_3 \times P_6) \text{ €}$

Series 9: Unknown probabilities

The following three questions are designed to assess your performance trade-offs between financial risk and ambiguity for your investments.

Question 9a, 9b, 9c

Assume now that you are about to invest a capital of X Euros, over a period of T year(s). You have the choice between:

- an investment A, for which your capital at the end will be:
 - either X_a Euros (equivalent net annual return of $Y_a\%$), with a probability of P_a unknown,
 - or X'_a Euros (equivalent net annual return of $Y'_a\%$), with a probability of $1 - P_a$ unknown.
- an investment B, for which your capital at the end will be:
 - either X_b Euros (equivalent net annual return of $Y_b\%$), with a probability of P_b unknown,
 - or X'_b Euros (equivalent net annual return of $Y'_b\%$), with a probability of $1 - P_b$ unknown.

Which one do you choose?

Investment A — Investment B

Your transportation modalities

24. Which mean of transportation do you most often use to go work/study?

- Public transport (bus, metro, etc.).
- Personal car.
- Other (specify): _____

25. How much time do you usually take to go work/study?

_____h, _____m.

26. What time do you have to arrive at your work/study place?

(If it varies from one day to another, thank you for choosing a representative day for you)

Between _____h, _____m and _____h, _____m.

Your transportation profile

Series 10: Scenario with advance

We now consider a series of two choices (a, b) between hypothetical transportation conditions for your morning trip to work/study. Each alternative is characterized by a different departure time, arrival time and thus travel time. In all cases, the travel time is deterministic and you arrive on time or in advance.

Question 10a, 10b

To go work/study in the morning, do you prefer the alternative A or alternative B? You have the choice between:

- Alternative A: departure at D_a and arrival at A_a (travel time: T_a).
- Alternative B: departure at D_b and arrival at A_b (travel time: T_b).

Which one do you choose?

Alternative A — Alternative B

Series 11: Scenario with delay

We now consider a series of two choices (a, b) between hypothetical transportation conditions for your morning trip to work/study. Each alternative is characterized by a different departure time, arrival time and thus travel time. In all cases, the travel time is deterministic and you arrive late.

Question 11a, 11b

To go work/study in the morning, do you prefer the alternative A or alternative B? You have the choice between:

- Alternative A: departure at D_a and arrival at A_a (travel time: T_a).
- Alternative B: departure at D_b and arrival at A_b (travel time: T_b).

Which one do you choose?

Alternative A — Alternative B

We now consider a series of two choices (a, b) between hypothetical transportation conditions for your morning trip to work/study. Each alternative is characterized by a different departure time, arrival time and thus travel time. In alternative A, travel time is deterministic, whereas it is random in Alternative B. However, in all cases, you can be sure to arrive on time or in advance.

Question 12a, 12b

To go work/study in the morning, do you prefer the alternative A or alternative B? You have the choice between:

- Alternative A of T_a and you arrive safely at A_a
- An Alternative B which offers
 - one in two chance with T_b of travel and you arrive at A_b and
 - one in two chance with T'_b of travel and you arrive at A'_b

Which one do you choose?

Alternative A — Alternative B

Series 13: Scenario with delay with risk

We now consider a series of two choices (a, b) between hypothetical transportation conditions for your morning trip to work/study. Each alternative is characterized by a different departure time, arrival time and thus travel time. In alternative A, travel time is deterministic, whereas it is random in Alternative B. However, in all cases, you can be sure to arrive late.

Question 13a, 13b

To go work/study in the morning, do you prefer the alternative A or alternative B? You have the choice between:

- Alternative A of T_a and you arrive safely at A_a
- An Alternative B which offers
 - one in two chance with T_b of travel and you arrive at A_b and
 - one in two chance with T'_b of travel and you arrive at A'_b

Which one do you choose?

Alternative A — Alternative B

End of the survey.