
Risk Tolerance Assessment Due Diligence Checklist

Overview

Financial professionals must satisfy themselves that any tool used in formulating advice is both fit for purpose and true to label.

Whatever role you have in an advisory business, be it advice, sales, compliance, auditor, or general management, it makes commercial sense, even if there is no specific legal requirement, to undertake a rigorous due diligence of the processes and tools used in formulating advice. Failure to do so leaves the business open to claims of negligence, and incompetence. In the case of risk profiling, poor processes add professional and reputation damage. Further, there is a high risk of clients being given advice that doesn't meet their needs.

Over the years we have been asked by financial professionals how best they might compare the Morningstar Risk Profiler (formally FinaMetrica) questionnaire provenance to the alternatives available to them. The following framework¹ is designed to assist those undertaking a risk tolerance assessment due diligence.

Due Diligence Checklist

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Due Diligence Checklist Completed for Morningstar Risk Profiler

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¹ Developed with the assistance of Stuart Erskine MA, a leading UK financial services consultant and economist and reviewed by Professor Irinini Moustaki and Dr. Myrsini Katsikatsou, from the London School of Economics.

Due Diligence Checklist

Company / Tool: _____

Section 1: Simple questions that require less technical knowledge

1. Face Validity

- a. Do the questions make sense to you? Can you understand them? If not, then clients may struggle to interpret the questions, the report will likely be inaccurate, and the final advice possibly flawed.

Yes. No.

- b. Does the content and wording of the questionnaire relate to financial risk tolerance and is there a variety of questions? The questions should relate to the topic of financial risk, and you also need to see variety, not the same or similar question asked multiple times, otherwise the questionnaire will not be valid.

Yes. No.

2. Design Provenance

- a. Has the questionnaire been designed by relevant field experts/academics (i.e., with financial sector and statistical experience)? It is a concern if the questionnaire does not have relevant expert origins.

Yes. No.

- b. Can those experts/academics be referenced and verified? Check their existence and relevance of their expertise.

Yes. No.

3. Academic Research and Independent Testing and Scrutiny

- a. Have academic researchers used the questionnaire or data set for any documented research, preferably published in internationally recognised peer-reviewed journals? Multiple academic reviews provide further evidence of the questionnaires' good provenance.

Yes. No.

- b. Does this research support the integrity of the questionnaire?

Yes. No.

c. Has the questionnaire been checked or tested by an independent academic? It is important that there is independence in testing outside of the provider and that the results of testing were positive.

Yes. No.

d. Ongoing development and analysis: How and by whom is the performance of the questionnaire monitored, tested, and updated?

e. How regularly has it been tested? This should happen at (a minimum of) 5 yearly intervals.

f. Are changes to the questionnaire documented and communicated to the users? Have there been several different versions, if yes why have there been changes. If there have been no changes, why not?

Section 2: More technical due diligence questions that require perhaps a little more technical knowledge, the answers to these questions should be found in the supporting technical manual for the questionnaire

4. Assumptions Underpinning the Questionnaire

a. What are the origins of the questionnaire? Is it empirically constructed or based on theory? Look for reference to academic papers or references. It is a good indicator if the questionnaire has a sound theoretical or empirical basis as opposed to been constructed or invented in-house.

b. What are the assumptions underpinning the questionnaire? Do these assumptions seem intuitively reasonable? For example, are there any assumptions about human nature or behaviour that seem unreasonable?

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- c. Is the questionnaire heavily influenced by a particular academic research paradigm (e.g., psychology and psychometrics)? Does this paradigm have any weaknesses?
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5. Relevance: Norms and Test Sample

- a. Has the questionnaire been tested against a relevant sample population? For example, is the age group that it has been tested with comparable to the age group that the assessment is designed for?
- Yes. No.
-

- b. Is there thorough information about the norms and standardisation process to develop an acceptable norm group?
- Yes. No.
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6. Usability Testing

- a. What testing has been undertaken to make sure that the questionnaire is useable? For example, is there any timing data showing how long on average it takes to complete the questionnaire? Many people have limited concentration so average completion time of less than 30 minutes would be a positive.
- Yes. No.
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- b. Can clients complete the questionnaire on their own without the help of a financial professional?
- Yes. No.
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7. Are You able to Articulate and Demonstrate an Understanding of the Questionnaire

- a. What is the scoring procedure? Can you understand and articulate it so you can demonstrate both your understanding and the transparency of the questionnaire? For example, are all the questions equally weighted?
- Yes. No.
-

- b. Are risk groups used? Do you understand how the risk groups are derived, and the descriptions provided?
 Yes. No.

- c. Are you provided with enough information to explain how the questionnaire results can be linked to an asset allocation/portfolio? Can you understand the thinking behind the methodology? For example, is it based on volatility of the asset classes?
 Yes. No.

8. Technical Support

- d. Is technical support is provided?

- a. Is there a technical manual available to you?
 Yes. No.

- b. Is the technical manual written to be understandable and useful for financial professionals?
 Yes. No.

9. Component (factor) Analysis

- c. Is the questionnaire measuring a single risk tolerance factor (or construct)? The questionnaire should be designed to assess risk tolerance. A single factor model should be adequate to explain the associations among the corresponding questionnaire items (i.e., the items should strongly correlate with the factor of risk tolerance).
 Yes. No.

- d. If the assessment is a multi-factor model, what other factors is it measuring? Are these relevant to your requirements? If not, then this may indicate poor construction, undermining the validity of the output.
 Yes. No.

10. Correlation Matrix

- a. The correlation matrix shows the strength of relationship between the questions. Are the individual questions/items strongly correlated with each other (correlations above 0.4 is considered moderate and above 0.7 is strong)?
 Yes. No.
-

11. Reliability

- a. The Cronbach Alpha assesses the overall relationship of the questions. Is the Cronbach Alpha for the assessment above a minimum of 0.5, with 0.8 considered as good?

 - b. Is test-retest reliability (i.e., the same assessment conducted on the same individual over time) analysis available? Test-retest indicates how stable the scores are over time.
 Yes. No.
-

12. Further Evidence of Construct Validity

- a. How well do the results of the assessment aligns with results of other assessments measuring similar concepts to financial risk tolerance (convergent validity)?

- b. How well do the results of the assessment aligns with results of other assessments measuring dissimilar concepts to financial risk tolerance (discriminant validity)?

- c. How well do the results of the assessment approximate the outcome or behaviour it was designed to measure (criterion validity)?

Due Diligence Checklist

Company / Tool: Morningstar Risk Profiler Questionnaire (FinaMetrica)

Section 1: Simple questions that require less technical knowledge

1. Face Validity

- a. Do the questions make sense to you? Can you understand them? If not, then clients may struggle to interpret the questions, the report will likely be inaccurate, and the final advice possibly flawed.

Morningstar Risk Profiler questionnaire (RTQ) was developed with the help of the University of NSW Unit of Applied Psychology in 1998. There were four 'loops' of a two-step process, a) questions are first tested for Usability - ease of understanding and ease of answering, through surveys, focus groups and interviews, and b) a questionnaire is then constructed from questions with high Usability and tested through Norming trials, which evaluate both the statistical qualities of the questions individually and together, and the scoring algorithms.

- b. Does the content and wording of the questionnaire relate to financial risk tolerance and is there a variety of questions? The questions should relate to the topic of financial risk, and you also need to see variety, not the same or similar question asked multiple times, otherwise the questionnaire will not be valid.

The questions were designed to capture as many aspects of risk tolerance as possible by diversifying across various themes, these themes were supported by research to capture risk preferences in one form or another. For example, some question asks about return expectations, some on self-classification, and some on past experiences.

2. Design Provenance

- a. Has the questionnaire been designed by relevant field experts/academics (i.e., with financial sector and statistical experience)? It is a concern if the questionnaire does not have relevant expert origins.

The Morningstar RTQ has its beginnings in The Survey of Financial Risk Tolerance (SOFRT) authored by Dr Michael J. Roszkowski, an Associate Professor of Psychology at The American College, and is an acknowledged expert in field with over 30 years of experience. Subsequently, the assessment has been independently assessed by Dr Myrsini Katsikatsou of London School of Economics and Stuart Erskine Commercial Economist.

- b. Can those experts/academics be referenced and verified? Check their existence and relevance of their expertise.

Dr Michael J. Roszkowski <https://www.researchgate.net/profile/Michael-Roszkowski>

Dr Myrsini Katsikatsou <https://www.researchgate.net/profile/Myrsini-Katsikatsou>

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3. Academic Research and Independent Testing and Scrutiny

- a. Have academic researchers used the questionnaire or data set for any documented research, preferably published in internationally recognised peer-reviewed journals? Multiple academic reviews provide further evidence of the questionnaires' good provenance.

The Morningstar RTQ is used in numerous research and PhDs, below are some recent and most relevant papers.

- Gokul, A., (2023) *Subjective Financial Risk Tolerance in a Black Swan Environment, Unpublished [MBA Dissertation].*
- Grable, J. E., Hubble, A., Kruger, M., & Visbal, M. (2020). *Predicting Financial Risk Tolerance and Risk-Taking Behaviour: A Comparison of Questionnaires and Tests. Financial Planning Research Journal, 6(1), 21-39*
- Hartnett, N., Gerrans, P., & Faff, R. (2019). *Trusting clients' financial risk tolerance survey scores. Financial Analysts Journal, 75(2), 91-104.*
- Kuzniak, S., & Grable, J. (2017). *Does financial risk tolerance change over time? A test of the role macroeconomic, biopsychosocial and environmental, and social support factors play in shaping changes in risk attitudes. Financial Services Review: The Journal of Individual Financial Management, 26(4), 315-338.*
- Gerrans, P., Faff, R., & Hartnett, N. (2015). *Individual financial risk tolerance and the global financial crisis. Accounting & Finance, 55(1), 165-185.*
- Roszkowski, M. & Davey, G. (2010). *Risk Perception and Risk Tolerance Changes Attributable to the 2008 Economic Crisis: A Subtle but Critical Difference, Journal of Financial Service Professionals, July, 42-53.*
- Goetz, J. (2006). *A Five-Nation Examination of Financial Risk Tolerance, Unpublished [PhD Dissertation].*

- b. Does this research support the integrity of the questionnaire?

Results reported in the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper support the integrity of the questionnaire.

- c. Has the questionnaire been checked or tested by an independent academic? It is important that there is independence in testing outside of the provider and that the results of testing were positive.

The Morningstar RTQ has been subjected to independent assessments at various stages since 1998 including certification from the University of New South Wales psychology department and reviewed by the London School of Economics.

- d. Ongoing development and analysis: How and by whom is the performance of the questionnaire monitored, tested, and updated?

The Morningstar Behavior Sciences team monitors, tests, and updates the performance of the questionnaire on a regular basis as part of an ongoing quality assurance program. These include:

- *an annual review of score distribution across time, country and demographic factors,*
- *test-retest analysis every two to three years or when sufficient data is acquired, and*
- *rescaling reviews every three to five years or when sufficient data is acquired.*

- e. How regularly has it been tested? This should happen at (a minimum of) 5 yearly intervals?
The Morningstar ongoing quality assurance program review and updates the questionnaire on a regular basis as outlined in 3d. As the questionnaire is distributed to more countries and customers, various analyses take place to ensure that the questionnaire along with the scoring method are relevant, valid, and reliable.

- f. Are changes made to the questionnaire documented and communicated to the users? Have there been several different versions, if yes why have there been changes. If there have been no changes, why not?

The Morningstar RTQ has undergone a process of real-world testing and evaluation. The questionnaire initially had 57 questions. Based on the results of further research conducted by Chandler & Macleod Consultants, the current scale has 25 items with a short form scale (12/10 items) introduced in 2012. Decisions to alter the scale were based primarily on the relevance and psychometric performance of an item, the clarity as measured by user responses and feedback and of course the usability of the tool. The questionnaire was fine-tuned in 2011/12 (version 2), 2017/18 (version 3), and a 2024/25 (version 4) is in development. Release Notes detailing changes are provided when new versions are released.

Section 2: More technical due diligence questions that require perhaps a little more technical knowledge, the answers to these questions should be found in the supporting technical manual for the questionnaire

4. Assumptions Underpinning the Questionnaire

- a. What are the origins of the questionnaire? Is it empirically constructed or based on theory? Look for reference to academic papers or references. It is a good indicator if the questionnaire has a sound theoretical or empirical basis as opposed to been constructed or invented in-house.

The Morningstar Risk Profiler/FinaMetrica system questionnaire has its beginnings in The Survey of Financial Risk Tolerance (SOFRT) authored by Dr. Michael J. Roszkowski (Roszkowski, M. J., 1993-97), who was Associate Professor of Psychology at The American College, Bryn Mawr, Pennsylvania and is an acknowledged expert in the relationships between psychological and financial variables.

- b. What are the assumptions underpinning the questionnaire? Do these assumptions seem intuitively reasonable? For example, are there any assumptions about human nature or behaviour that seem unreasonable?

The origins of the Morningstar RTQ are in evaluation of the performance of the psychometric question set. This approach does not require restrictive assumptions of human behaviour.

- c. Is the questionnaire heavily influenced by a particular academic research paradigm (e.g., psychology and psychometrics)? Does this paradigm have any weaknesses?

The Morningstar RTQ is devised under a psychometric framework. The mapping and scoring approach has been influenced by empirical study over the years of the tools existence.

5. Relevance: Norms and Test Sample

- c. Has the questionnaire been tested against a relevant sample population? For example, is the age group that it has been tested with comparable to the age group that the assessment is designed for?
The Morningstar RTQ has initially (1999) been tested against a sample of 4,000 participants from AU and NZ. This seems a relevant sample especially in the beginning where the questionnaire was administered only in these countries. As data from other countries are collected, these are introduced into subsequent norm samples. The current norm sample includes data from AU, CA, DE, IE, IN, UK, US, and ZA, primarily sourced from clients of financial professionals.

- d. Is there thorough information about the norms and standardisation process to develop an acceptable norm group?

Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper provides details of the norms and standardisation process.

6. Usability Testing

- a. What testing has been undertaken to make sure that the questionnaire is useable? For example, is there any timing data showing how long on average it takes to complete the questionnaire? Many people have limited concentration so average completion time of less than 30 minutes would be a positive.

The Morningstar RTQ was initially administered to 250 individuals (1998) to ensure its usability and further testing was conducted Chandler & Macleod Consultants. The questionnaire has now been administered to over two million individuals globally and most respondents completed the questionnaire within 15-20 minutes.

- b. Can clients complete the questionnaire on their own without the help of a financial professional?

The Morningstar RTQ is designed to be completed by an individual without the aid of a financial professional to ensure bias is not introduced.

7. Are You able to Articulate and Demonstrate an Understanding of the Questionnaire

- d. What is the scoring procedure? Can you understand and articulate it so you can demonstrate both your understanding and the transparency of the questionnaire? For example, are all the questions equally weighted?

Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper provides details of the scoring procedure. In general, responses to items are all rescaled to reflect how many standard deviations the response is from the mean response for that question (z-scores) generated from our norm group. This approach allows us to compare directly responses to questions that have different numbers of response options to see which response represents the riskier option. This means the questions are not weighted equally. E.g., if you had selected option 2 for Q1 the weight for that is different to if you had selected option 2 for Q2 because the mean responses for Q1 and Q2 are different. When all the questions have been rescaled in this manner, the scores are combined and rescaled once more to produce a final score mapped onto a range of 0 – 100. The scale is designed so that our norm group would produce a mean risk score of 50, and a standard deviation of 10.

- e. Are risk groups used? Do you understand how the risk groups are derived, and the descriptions provided? *The Morningstar RTQ measures risk tolerance on a scale of 0 to 100. Scores are Normally distributed with a Mean of 50 and a Standard Deviation of 10. To make the scores and reports more meaningful, the scale has been divided into seven/five segments. The middle segment is the Mean \pm half a Standard Deviation, i.e., from 45 to 54. Segments either side are then a Standard Deviation higher or lower, with the end segments covering the balance of the high and low 'tails' of the distribution. Each of the segments is referred to as a Risk Group.*

The risk group descriptions reflect how clients whose scores fall within that group typically answer the questionnaire. This information is designed for financial professionals to better understand the characteristics of each risk group. We also highlight where an individual differs from the risk group description, these differences are what make each individual unique.

- f. Are you provided with enough information to explain how the questionnaire results can be linked to an asset allocation/portfolio? Can you understand the thinking behind the methodology? For example, is it based on volatility of the asset classes?

There is often a gap between the level of risk an individual would normally choose to take, their risk tolerance, and the risk associated with the return required to achieve their goals, their risk required. To identify that such a gap exists and to resolve it, requires that you can make an apples-to-apples comparison between risk tolerance and investment risk. Assuming that the portfolio is well diversified, the percentage of Growth Assets (and Morningstar Portfolio Risk Score) is a suitable parameter to enable that comparison. The Morningstar Risk Comfort Range paper provides further details of the mapping methodology.

8. Technical Support

- a. Is technical support is provided?

Technical support is provided via multiple channels (email, phone, and FAQs on website). Train the trainer support is also available for firms with multiple financial professionals.

- b. Is there a technical manual available to you?

Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper is available on our website.

- c. Is the technical manual written to be understandable and useful for financial professionals?

Our methodology paper is written for financial professionals and those undertaking due diligence of the Morningstar Risk Profiler.

9. Component (factor) Analysis

- a. Is the questionnaire measuring a single risk tolerance factor (or construct)? The questionnaire should be designed to assess risk tolerance. A single factor model should be adequate to explain the associations among the corresponding questionnaire items (i.e., the items should strongly correlate with the factor of

risk tolerance).

Results from our principal component analysis as detailed in the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper indicate that there is a common factor in all items which can be interpreted as risk tolerance.

- b. If the assessment is a multi-factor model, what other factors is it measuring? Are these relevant to your requirements? If not, then this may indicate poor construction, undermining the validity of the output.

The Morningstar RTQ is a single factor assessment.

10. Correlation Matrix

- b. The correlation matrix shows the strength of relationship between the questions. Are the individual questions/items strongly correlated with each other (correlations above 0.4 is considered moderate and above 0.7 is strong)?

Among all pairwise associations of the scored questions, half of them is moderate or strong for both the Pearson and Goodman and Kruskal's gamma coefficient measures. Refer to the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper for full details.

11. Reliability

- a. The Cronbach Alpha assesses the overall relationship of the questions. Is the Cronbach Alpha for the assessment above a minimum of 0.5, with 0.8 considered as good?

The Morningstar RTQ has strong cronbach's alphas, all greater than 0.8, in most cases it reaches 0.9, with the overall cronbach's alpha at 0.9. Refer to the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper for full details.

- b. Is test-retest reliability (i.e., the same assessment conducted on the same individual over time) analysis available? Test-retest indicates how stable the scores are over time.

The split-half approach, which can be viewed as a one-test equivalent to test-retest reliability, is 0.84 and the test-retest result is 0.77, both considered very good. Refer to the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper for full details.

12. Further Evidence of Construct Validity

- a. How well do the results of the assessment aligns with results of other assessments measuring similar concepts to financial risk tolerance (convergent validity)?

The Morningstar RTQ correlates strongly with the Grable & Lytton scale, which is used extensively in academia as an established assessment of risk tolerance. Refer to the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper for full details.

- b. How well do the results of the assessment aligns with results of other assessments measuring dissimilar concepts to financial risk tolerance (discriminant validity)?

Not available for the Morningstar RTQ.

- c. How well do the results of the assessment approximate the outcome or behaviour it was designed to measure (criterion validity)?

We examine both forms of criterion validity: concurrent validity, how well the Morningstar RTQ correlates with another measure of risk tolerance concurrently; and predictive validity, how well the Morningstar RTQ correlate with individual's asset-allocation outcomes.

The Morningstar RTQ correlates strongly with the Grable & Lytton scale, which is used extensively in academia as an established assessment of risk tolerance and correlates moderately well with risky/growth asset ownership and is shown to provide a good indication of an individual's actual risky/growth asset ownership (behavioral assessment). Refer to the Morningstar Risk Profiler: Psychometric Risk Tolerance Methodology paper for full details.