

# Financial DNA<sup>®</sup> - Loss Aversion Methodology Review

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## Financial DNA® – Loss Aversion Methodology Review

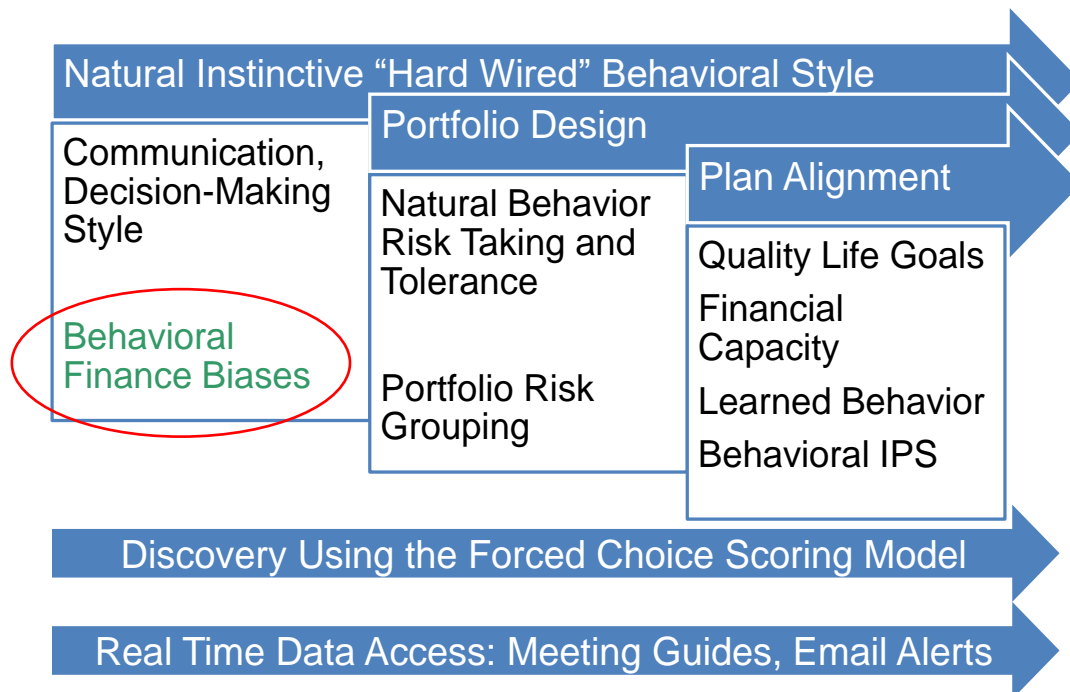
### Introductory to the Financial DNA Loss Aversion Methodology

Since Daniel Kahneman and Amos Tversky were awarded the Nobel Prize for their Prospect Theory, the subject of Loss Aversion and the field of behavioral finance generally has been the subject of increasing attention. Given that the Prospect Theory research demonstrates that individuals will prefer to avoid losses two times to the opportunity to make a gain the area of Loss Aversion warrants specific review.

DNA Behavior International is focused on making the field of behavioral finance practical for advisors and their clients through the use of proprietary discovery processes which have been independently validated.

The foundation of DNA Behavior International’s unique methodology for determining Loss Aversion is the deployment of the Financial DNA Discovery Process™. The Financial DNA Discovery Process is an independently validated process for holistically revealing a person’s financial personality through the personal completion of structured assessments.

Loss Aversion is only one trait of an individual’s complete financial personality. In this report, we have provided a summary of the Financial DNA Discovery Process as it pertains to identifying and applying one’s Loss Aversion in decision-making.



1. The first step is the completion by the participant of the Financial DNA Natural Behavior Discovery Process involving 46 Forced Choice questions (with 138 rating items), taking approximately 15 to 20 minutes to complete. Only 24 of these rating items directly relate to Loss Aversion. However, it is the interlocking nature of how they are selected within the total 138 rating items that determines the outcome, and is the power of the Forced Choice Scoring Model.

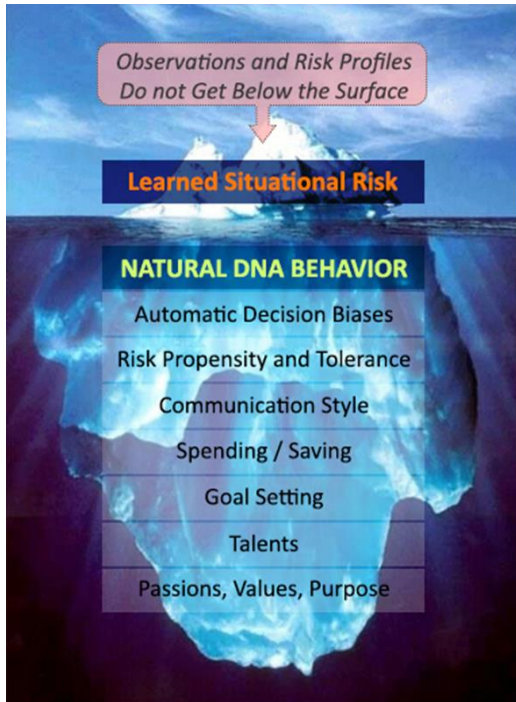
The screenshot displays the DNA Behavior assessment interface. At the top right is the DNA Behavior logo. Below it is a progress bar showing 0% to 100%. A central instruction box reads: "Answer based on your natural instinctive behavior, regardless of whether you consider it to be good or bad." Below this, two sample questions are shown. Question 9 has three options: "Outspoken" (Does not hesitate to talk or express views, speaks up), "Sees others' viewpoint" (Tolerant, accepting, responsive to thoughts and feelings of others), and "Exerts will" (States one's positions boldly, confidently, and with self assurance). Question 10 has three options: "Well organized" (Orderly, systematic, structured), "Moves boldly" (Acts with self assurance, does not doubt self), and "Resourceful" (Able to come up with new systems, inventive, enterprising). On the left, a "Sample" box explains the forced choice format: "Please select only one option for Most and only one option for Least in each triad as shown below." It shows two columns, "Most" and "Least", each with three radio buttons. A note states: "You cannot select the same option for the Most and Least options."

2. The discovery of a person's natural DNA behavior is the first step in financial personality discovery, as it provides the most consistent prediction of the behaviors a person will exhibit or instinctively revert back to under pressure. Therefore, understanding a person's natural DNA behavior will provide very accurate insights into how a person will make decisions throughout their life. Put another way, this is a more reliable foundation for long term investment portfolio construction. Overall and based on our research, we believe the influences of natural behavior are more likely to prevail over the influences of nurtured or situational learned behaviors in shaping a person's decision-making.
3. The Financial DNA Discovery Process is unique in its separate measurement of the distinct behavioral traits known as: "Risk Propensity" and "Risk Tolerance" ("Loss Aversion").
  - Risk Propensity is the desire for a person to take risks.

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- Risk Tolerance is a person’s ability to emotionally live with the consequences of taking risks. This is what we term and treat as a person’s Loss Aversion from a behavioral standpoint.

The Financial DNA reporting provides a separate population weighted score in the range of 0 to 100% (based on a T-Score in a range of 20 to 80 determined using statistical analyses) for each of these behavioral sub-factors.

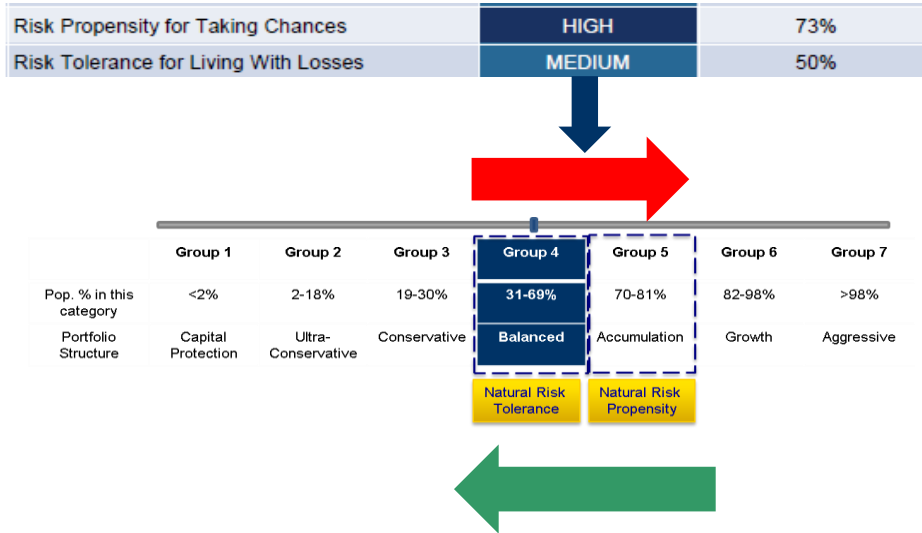


**Communication DNA**  
Communication and Learning Style Discovery  
(2 to 5 mins)

**Financial DNA**  
Natural Behavior Discovery  
(15 to 20 mins)

Risk Propensity for Taking Chances	HIGH	98%
Risk Tolerance for Living With Losses	HIGH	99%

4. Our independent research shows that the Risk Tolerance (Loss Aversion) score will be more than 20% higher than the Risk Propensity Score in 20% or more of cases. The research also shows that the converse situation will occur. In addition, our research shows that 20% of people expect guaranteed results from financial solutions and also their advisors. We call this the “Advisors Nightmare”.



- In understanding the practical application of a client's reaction to market movements, the use of our Market Mood™ Dashboard, in which we adopt the principles of "Prospect Theory", calculates that a person's Loss Aversion is 2 times the desire for an opportunity to make a gain. In other words, our assumption is that people become fearful of market downturns at double the level to market upswings.



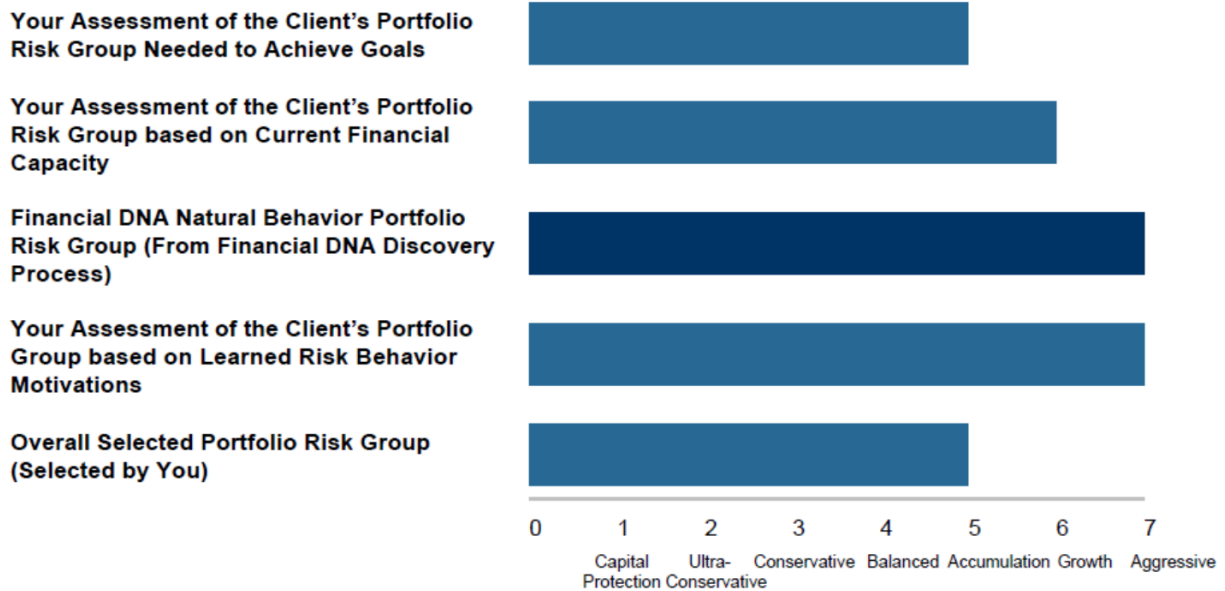
- Our Financial DNA reporting provides clients with a population weighted Investment Portfolio Grouping of between 1 to 7 based on the averaging of their Risk Propensity and Risk Tolerance

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(Loss Aversion) scores. Also, this methodology is consistent with international risk classification, such as ESMA.

Natural Behavior Investment Portfolio Parameters							
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Pop. % in this category	<2%	2-18%	19-30%	31-69%	70-81%	82-98%	>98%
Portfolio Structure	Capital Protection	Ultra-Conservative	Conservative	Balanced	Accumulation	Growth	Aggressive

7. Ultimately, our belief is that the amount of investment losses a particular person has the capability to withstand or manage in their portfolio is driven by the inter-relationship of the following elements:



- In designing an investment portfolio for clients, their financial goals need to be recognized based on a financial calculation of where they are now and where they want to be. This will determine the risk grouping level their portfolio needs to have.

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Portfolio Risk Group	1 Capital Protection	2 Ultra-Conservative	3 Conservative	4 Balanced	5 Accumulation	6 Growth	7 Aggressive
1. Investment Portfolio Rate of Return Aim to Achieve Goals (Without Borrowing)	In Line with Cash Deposits	In Line with or slightly better than cash deposits	Excess of deposits and possibly beats inflation	Average returns higher than deposit rates and inflation	Above average returns and higher than deposits or inflation	Significantly higher than deposits and inflation with high return potential over the long term	The highest return potential over the longer term

- Financial capacity being the capability to absorb a financial loss based on their life and financial circumstances.

Portfolio Risk Group	1 Capital Protection	2 Ultra-Conservative	3 Conservative	4 Balanced	5 Accumulation	6 Growth	7 Aggressive
2. Average Portfolio Fluctuation Based on 5 Year Data of Monthly Pricing	0% to ±0.5%	±0.5% to ±2%	±2% to ±5%	±5% to ±10%	±10% to ±15%	±15% to ±25%	±25% or greater
3. Potential Short Term Portfolio Loss (Based on Outer Limits)	-1%	-4%	-10%	-20%	-30%	-50%	Far greater than -50%
4. Risk of Expected Loss	Very Low Risk	Low Risk	Low to Medium Risk	Medium Risk	Medium to High Risk	High Risk	Very High Risk

- Natural risk propensity and risk tolerance (Loss Aversion) characterizing the instinctive emotional capacity to absorb losses based on discovery of their Financial DNA Natural Behavior.
- Learned risk propensity and risk tolerance (Loss Aversion); the current situational emotional capacity to absorb losses, based on discovery of the influences of their circumstances, experiences and education. This is the behavior a person may have adapted upon which they are basing their life journey. Such learned behavior can be identified through completion of an additional discovery process known as Financial Personality Discovery.

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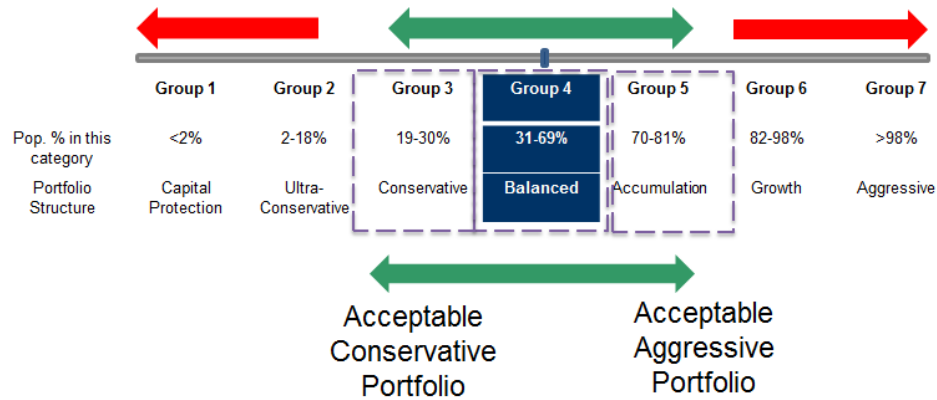
Potential Motivations Influencing Client Investment Decisions	Client Maybe Motivated to Invest Higher Than their Natural Risk Behavior	Client Maybe Motivated to Invest Lower Than their Natural Risk Behavior
1. Market Perception	Bullish	Bearish
2. Goal Setting Attitude	Ambitious	Conservative
3. Financial Decision-Making Confidence	High	Low
4. Age	Retirement in 10+ Years	Close to Retirement
5. Financial Experiences	Good – “Rags to Riches”	Poor – “Riches to Rags”
6. Life Experiences	Positive Feeling	Negative Mood
7. Values and Beliefs	Belief in taking risk builds wealth	Belief that investments are for life security
8. Financial Education	High Investment Knowledge	Low Investment Knowledge

We deliberately do not advise the client or advisor what the investment portfolio structure should be; this is considered to be the advisors responsibility, and should be based on the unique life and financial circumstances of the client. However, we assist advisors manage and document the relationship of these elements through the preparation of a Behavioral Investment Policy Statement.

8. Taking the above elements into account in building an investment portfolio, we recommend clients are not invested more than 10% above their natural instinctive behavior for Risk Propensity and Risk Tolerance (Loss Aversion). This is to mitigate the impact of adverse emotional reactions to market movements over the longer term. Similarly, if they are invested more than 10% below their natural instinctive behavior then there may be missed expectations based on return under-performance.

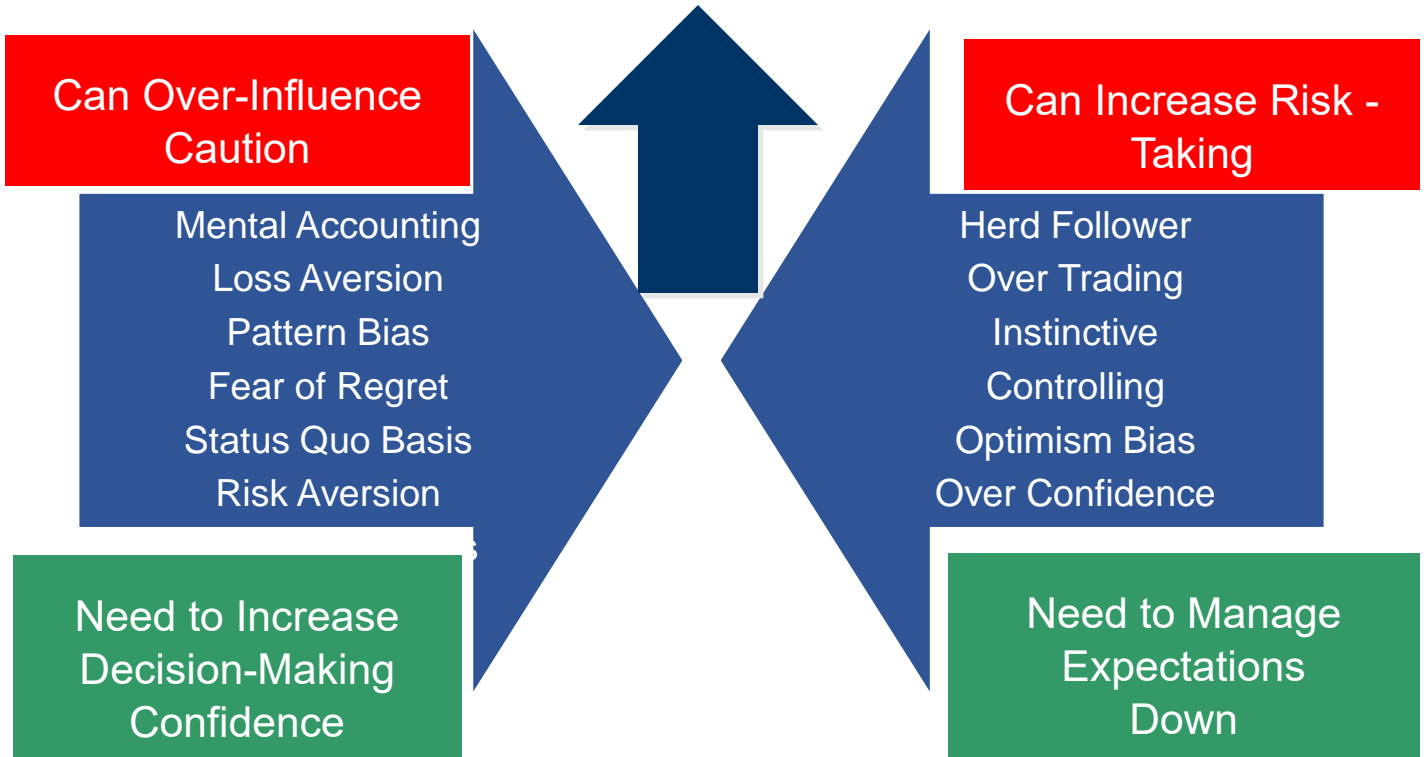


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- The strength of a client's level of Loss Aversion may be subject to increase or decrease based on decisions made as a consequence of other behavioral biases. Certainly, the strength of the Loss Aversion will be positively correlated to some other biases. This is likely to cement the strength of the Loss Aversion. For instance, if the person has the Disposition Effect Bias such that they sell winners and hang on to losers, they may have a higher Loss Aversion. However, if a person has a behavioral bias towards taking a Consolidated View of their overall portfolio such that they are not focused on individual investment positions, this would be consistent with a lower Loss Aversion.

## Financial Personality Risk



To learn more about how the Financial DNA Discovery Process works, please review our booklet:  
**About Financial DNA.**

## Strengths of the Financial DNA Loss Aversion Methodology





The strengths of Financial DNA's methodology are:

1. Recognition that Loss Aversion is only one behavioral trait that makes up a person's **Financial Personality**. In the Financial DNA Natural Behavior Discovery Process we measure 64 primary behavioral factors and sub-factors.
2. Consideration of the Loss Aversion in the context of 16 primary **Behavioral Finance Biases** and the overall life circumstances of the person.
3. Independently validated **Forced Choice Scoring Methodology** for objective discovery of a person's instinctive natural DNA behavior as the core of their Financial DNA. This methodology has been scientifically proven (see Appendix A) to be one standard deviation more accurate over time compared to other traditional scoring methods. The strength of this methodology is that it removes the situational, educational, cultural and other environmental biases that typically make the traditional risk profiling and personality tools unreliable for long term decision-making.
4. Financial personality discovery results (including Loss Aversion) available in user-friendly **Financial DNA Reports** for both advisors and clients.
5. Practical application of Loss Aversion in building **Investment Portfolio's** to meet regulatory suitability requirements.
6. Real time connection of a client's behavioral reaction to market movements using the **Market Mood™ Dashboard**. The Market Mood Dashboard provides customized communication and action steps for each client based on how their behavioral style is impacted by different market movements.
7. Measurement of a person's learned situational behaviors using a separate Financial Personality Discovery process to build a **Financial Behavior Analysis** to highlight decision-making patterns that need to be addressed.
8. **Scalable Technology Platforms** for easy use with every client online, including enabling monitoring of recommendations made against client behavior.

## Summary of New Methodology for Financial Personality Discovery

The paradigm shift Financial DNA delivers from unreliable investment risk profiling to reliable financial planning risk management is highlighted in the table below:

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Current Risk Profile Paradigm	DNA Behavior Holistic Approach	New Generation of Financial Personality Discovery and Performance Measurement
Single Dimension Investment Risk Measurement		Multi Dimensional Behavioral Measurement
Current Learned Behavior		Predictive Natural Behavior and Learned Behaviors
N/A		Quality Life Goals
N/A		Financial Planning Management
N/A		Asset Allocation Preferences
N/A		Advisor Client Matching + Communication
N/A		Learning Style
Situational Questions and Intelligence, Experience Bias		Forced Choice Questions
Overweighting of Questions		Validated Psychometric Analysis

DNA Behavior International formed the DNA International Center for Behavioral Research *to provide a professional environment for the development and on-going performance monitoring of behavioral instruments according to recognized professional standards.*

The Financial DNA Discovery Process is based on extensive research; independently validated since 2001 by a highly qualified research team with 100+ years of combined academic and practical profile development experience. Over 60 Man Years has been invested in the development of its suite of DNA Behavior Discovery Systems and Application Resources.

Since 2001 over 700,000 people have participated in the DNA Behavior Discovery Processes.

**Combinations and Permutations**

How many different Objects are there?  (n)

How many Objects will you choose?  (r)

Is the position of each Object important?  ▼

Is there an unlimited supply of each Object?  ▼

**Combinations:**

Formula: 
$$\frac{(n+r-1)!}{r!(n-1)!}$$

**List Them:**  
Type 'n' names separated by commas, then press 'List'  
a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z

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[View Larger](#)

1. The Financial DNA Natural Behavior Assessment is comprised of 46 sets of three non-situational items (pairs of phrases) that relate to one of the 8 factors using a forced choice rating (most like, least like) methodology. A total of 138 rating items.
2. Independent validation work using established psychometric methodologies performed by industrial psychologists from Georgia Tech University, and other independent psychologists with a total of more than 100 years relevant experience.
3. The responses to the 46 questions (138 rating items) produce 2,349,060 scoring combinations.
4. The number of unique report T Score combinations is:  
3,704,945,600,000,000,512,144,136.

# DNA Behavior®

To learn more about our research, methodology and the overall system, please review the following detailed documents:

1. DNA Behavior – Getting to the Core of Human Behavior
2. DNA Behavior – Behavioral Discovery Product Outline
3. DNA Behavior Natural Behavior Validation Report (Confidentiality Agreement Required)
4. Financial DNA Behavior Insight Series Booklets on each Behavioral Factor

In particular these documents address the following:

1. Our research methodology and processes
2. The Forced Choice Assessment Model as the “Platinum Standard” for discovering Natural DNA Behavior
3. DNA Behavior research findings impacting financial and investment decision-making
4. The flaws of traditional risk profiling and personality tool formats
5. The 3 levels of financial personality and how they impact financial and investment decision-making