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Examining relationships between Covid-19, investor personality traits, and investor risk tolerance.

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Examining relationships between Covid-19, investor personality traits, and
investor risk tolerance.

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Abstract

In 2020, financial markets around the globe sharply declined as the threat
of Covid-19 became severe. The financial market reactions were precedented.
Due to the unprecedented reaction, conversations arose describing the
influences that impacted investor behavior. Among these influences are
behavioral influences such as personality traits and financial risk tolerance. The
following research evaluates the relationships between Covid-19, Dark Triad
Personality Traits (narcissism, Machiavellianism, and psychopathy), financial
feelings, preference for consistency, long-term orientation, and the need to
evaluate. A survey gauging individuals' economic perception, personality traits,
and risk behavior was distributed to 116 individuals. Quantitative analysis was
done using t-tests to find significant differences between groups who exhibited
high and low levels of any given personality trait. In addition to gauging
significant differences in personality traits, the survey also gauged financial risk
tolerance, financial feelings, and how investors perceive the threat of Covid-19.
The study found that there are statistically significant relationships between
Covid-19, Dark Triad Personality Traits, financial feelings, the need to evaluate,
and preference for consistency. During a time of financial uncertainty such as
Covid-19, individuals who exhibited higher levels of dark triad personality traits

had lower financial feelings and a lesser preference for consistency. Individuals who displayed higher levels of dark triad personality traits also had a larger risk tolerance. Additionally, individuals who are more long-term oriented have more enhanced financial feelings. This research evaluated relationships to help better understand the relationships between Dark Triad Personality traits and risk among other factors.

Keywords: Dark Triad Personality Traits, Covid-19, Investor, Investor Perception, Financial Risk Tolerance, Preference for Consistency, Long Term Orientation, Need to Evaluate

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Examining relationships between Covid-19, investor personality

traits, and investor financial risk tolerance.

Introduction

In March 2020, the U.S. stock market saw three of the largest single-day point drops in the history of the stock market. On March 9th, the stock market fell 2,013.76 percentage points. On March 12th, the stock market fell 2,352.60 percentage points. On March 16th, the stock market fell 2,997.10 percentage points in a single day. Covid-19 began to make its way into the United States in early March 2020, and it is credited for causing the three largest single-day point drops in stock market history.

Investors' reaction to the Covid-19 pandemic was different from investors' reaction during previous pandemics. The dramatic reaction raised a lot of questions about the unprecedented reaction from investors. Many Covid-related factors were said to have had a negative effect on the market. The factors included increases in Covid-19 cases, government interventions, increases in positivity rates, and an increase in Covid-19 death rates (Reis, 2022). While all of these factors contributed to the market crash, researchers began to suggest

many other factors contributed to the market's reaction. The market's dramatic reaction became the focus of behavioral finance discussions.

The following research seeks to better understand the psychological factors that impacted investors' reactions to Covid-19. Additionally, the study seeks to better understand the relationships between psychological factors and financial risk tolerance. Furthering the understanding of psychological factors on investors' behavior has become increasingly important during the Covid-19 pandemic.

<div align="center">**Literature Review**</div>

Behavioral Finance/Investor Personality Traits

Behavioral finance can be used to analyze investors' psychological influences and market outcomes. Additionally, behavioral finance seeks to understand the factors that influence an investor's financial decision making such as judgment, emotional, social, and intellectual factors (Ahmed et al., 2022). One of the psychological influences prevalent in behavioral finance research is personality traits and how they influence economic decisions. Personality traits are considered psychological influences because they can determine how individuals perceive information. Personality traits are included in this study because they can determine how individuals process financial market information and can change their relationship to risk (Bortoli et al., 2019). Not only does behavioral finance discuss how psychological factors affect how investors process information, but it can also influence an investor's risk-taking behavior (Hoffman et al., 2015). Additionally, research suggests that psychological factors,

such as personality traits, play a vital role in the financial decision-making of investors (Talwar et al., 2020).

Previous research highlights that personality traits affect investor behavior. The most often discussed personality traits regarding behavioral finance are the big 5 personality traits which include extraversion, agreeableness, openness, conscientiousness, and neuroticism (Baker et al., 2021; Pavlicek & Hintosova, 2021; Sadiq, M. 2019). Additional research highlights that there are links between personality traits and financial risk tolerance (Ahmad & Maochun, 2019).

Financial Risk Tolerance

Risk tolerance is, "Broadly defined broadly as a person's willingness to engage in a financial behavior, in which the outcome is both uncertain and potentially negative. (Heo et al., 2020)." Many researchers have noted that Financial Risk Tolerance is subject to change when there is a significant market disruption (Heo et al., 2020). Recent studies have highlighted that there is a significant link between an investor's financial risk tolerance and investor behavior (Singh et al, 2022)

Prospect Theory

One theory that is often associated with financial risk tolerance is prospect theory. Prospect theory explains why people behave in a certain way, especially with decisions regarding money (Ungvarsky, 2023). Prospect theory suggests that "people are generally risk averse and that their decisions are weighted toward the options that lessen the chance of a loss and increase the chance of a win" (Ungvarsky, 2023). Prospect theory highlights that people do not properly

consider the possibilities of a certain event happening (Ungvarsky, 2023).

Furthermore, people are more likely to overestimate the odds of something

negative happening and underestimate the odds of something positive

happening (Ungvarsky, 2023).

Covid-19 Impacts on Financial Markets/Investor Perceptions

As briefly mentioned in the introduction, Covid-19 had a significant effect

on financial markets all over the world. Factors such as increases in Covid cases,

increase in Covid positivity rates, government interventions, and increases in

Covid deaths caused a lot of uncertainty in financial markets (Reis, 2022). From

February 2020 to April 2020, the S&P 500, which tracks the top 500 companies

in the US, drastically decreased as Covid-19 became prevalent in the United

States in late February and March.

While the market was crashing, investors turned their eyes to another

stock market index. The VIX indicates the volatility in the US financial markets

(Hoang & Qasim, 2022). The VIX index is calculated daily, and it measures the

fear or uncertainty of investors in the market (Hoang & Qasim, 2022)

From February 2020 to April 2020, the VIX hit its all-time high as Covid-19

became a severe threat in the United States. The VIX highlights that the United

States financial market became more volatile as Covid-19 became more

prevalent in the United States and peaked during the time that the market began

to crash. Considering multiple factors such as the market crash in 2020, market

volatility and investor fear, the market was not efficient during the Covid-19

pandemic (Vasileiou, 2020). Due to the fear and uncertainty that spread

throughout investors in 2020, most financial markets experienced a decrease of 10-20% in a single day (Talwar et al., 2020).

Recent research concludes that health crises and psychological disorders among the public affect the economic conditions and financial positions of investors (Naseem et al., 2021). The same study established a downward trend in the relationship between a downward trend in the stock market and the pandemic's negative impact on investor attitude/sentiment (Naseem et al., 2021). Additional research suggests that during times of volatility and uncertainty, investors are increasingly prone to react emotionally and economically irrationally (Wisniewska, 2022).

As the literature suggests, Covid has a significant impact on financial markets. Compared to other pandemics, the unique threats associated with Covid-19 had a significant impact on investor psychology and expectations (Yuan et al., 2022) One of the unique effects that had a significant effect is government intervention in commercial activity (Baker et al., 2020). Since the United States is a service-oriented economy, the government restrictions/interventions placed on all non-essential businesses and other commercial activities played large roles in the sharp decline in the financial markets in the United States (Baker et al., 2020).

Another factor to take into consideration is the news that was making headlines during the time of the pandemic. As new Covid-19 infections and death rates were reported, financial markets became more volatile (Albulescu, C. 2020). Not only did reports of increases in cases and death influence the market,

but news outlets were releasing news that was instilling panic in investors (Harron & Rizvi, 2020). Additionally, previous research suggests that extreme events, such as Covid-19, have long-lasting effects on investor behavior and financial decision-making (Huber et al., 2021).

Financial Feelings/Investor Attitudes

Beliefs and feelings are thought to be determinants of attitudes and attitudes influence how one behaves (Pavlicek & Hintosova, 2021). Due to the decrease in financial markets around the globe, attention has been brought to how uncertainty and fear affect investors' risk attitudes (Amstad et al, 2020). The research hypothesizes:

H1: Participants who display higher (lower) levels of Dark Triad personality traits will have lower (higher) levels or less (more) enhanced financial feelings during a time of economic uncertainty such as the Covid-19 pandemic.

Dark Triad Personality Traits

Dark triad personality traits consist of narcissism, Machiavellianism, and sub-clinical psychopathy. All three of the personality traits are related. People with high Dark Triad personality traits have inflated self-views, are willing to manipulate others to achieve a goal, and have little empathy or remorse for their actions (Crysal et al., 2012).

People with Machiavellian personality traits are described as being cold, callous, cynical, and having a complete disregard for morality (Hess, M 2022). Additionally, they are willing to manipulate others in the pursuit of money and power (Hess, M 2022). People who display high levels of Narcissism are known

to be entitled, self-absorbed, and arrogant (Hess, M 2022). People who display high levels of psychopathy personality traits often lack empathy and remorse (Hess, M 2022). Additionally, individuals who display psychopathic personality traits display more impulsive behaviors (Hess, M 2022).

Previous research suggests there is an association between Dark Triad Personality Traits and risk behavior (Crysal et al., 2012). Additional research finds that individuals who display higher levels of psychopathy and narcissism had a higher tendency to take financial risks (Sekscinska & Rudzinska-Wojciechowska, 2019). The same study also found that the presence of narcissism and psychopathy play a significant role in explaining an individual's tendency to take investment risks (Sekscinska & Rudzinska-Wojciechowska, 2019).

Additionally, it has been found that consumers with high levels of Dark Triad personality traits have larger rates of consumption and they are likely to be more involved in the consumption process (Blair et al., 2022). It was also highlighted that the consumers with high levels of Dark Triad personality traits consume more because of their increased self-confidence and tendency to be aggressive towards others (Blair et al., 2022). Lastly, it was stated that consumers with high levels of Dark Triad personality traits are more likely to manipulate and attempt to convince themselves that a purchase was justified (Blair et al., 2022)

The previous literature highlights that people with high levels of Dark Triad personality traits are more likely to engage in financially risky behavior.

Additionally, the literature suggests that people with high levels of Dark Triad personality traits will try to manipulate themselves into justifying their actions. Therefore, the research hypothesis:

H3: Participants who exhibit higher (lower) levels of the Dark Triad Personality traits will have higher (lower) levels of financial risk tolerance.

Need to Evaluate

The need to evaluate is defined as, "an individual's insatiable desire to evaluate their surroundings and situations, especially new ones" (Sam, N. 2013). Previous research suggests multiple factors cause an individual's need to evaluate to be a dominant response. Literature suggests that one of these factors is an individual's attitude (Jarvis, W., 196)

H2: Participants who display a higher (lower) need to evaluate will exhibit lower (higher) financial risk during a time of economic uncertainty such as Covid-19.

Preference for Consistency

Preference for consistency is a personality trait that reflects a person's desire to maintain consistency within their cognitive system (American Psychological Association). Previous research has indicated that individuals who have a higher preference for consistency exhibit different behavioral patterns than individuals who have a lower preference for consistency (Guadagno & Cialdini, 2010). It was also found that individuals with a high preference for consistency express higher levels of emotional upset and an increased desire to

reduce emotional upset compared to individuals with a low preference for consistency (Brown, Asher, & Cialdini, 2005).

Methodology

Procedure

The survey was conducted through Amazon Mechanical Turk. Survey participants received one dollar upon completion of the survey. Participants were grouped into two groups based on which scenario they received. Furthermore, personality trait variables such as financial feelings, dark triad personality traits, long-term orientation, need to evaluate, and preference for consistency were divided into high and low groups using a median split. For quantitative data, T-tests were conducted to find significant differences between variable means.

Sample

Table 1: Sample Data

Surveys Started	125
Incomplete Surveys Removed	6
Attention Check Failure Removal	3
Final Sample Size	116

A total of 125 surveys were started on Amazon Mechanical Turk. After removing surveys that were not completed, the survey size was 119. An additional three surveys were removed for failing an attention check. The attention check was used to ensure that participants were thoroughly reading the questions that they were answering. The attention check asked participants to

disregard the instructions for the following question and type reader. Three participants answered the question instead of typing reader. Due to failing the attention check, their responses were discarded, leaving a final sample size of 116.

Participants ranged from 30 to 71 with an average age of 45.76. 55 percent of the sample was male and 43.97 of the sample was female. The remainder of the sample preferred not to disclose their gender. The participants' marital status consisted of married (44.83% of the sample), widowed (1.72% of the sample), divorced (9.48% of the sample), single (37.93% of the sample), and cohabitation/living with a partner (6.03% of the sample). The questionnaire also asked participants what their ethnicity/race was. The participants' race consisted of Asian/Pacific Islander (9.48% of the sample), Black/African American (6.03% of the sample), Hispanic/Latino (2.59% of the sample), Native American/American Indian (1.72% of the sample), White/Caucasian (78.45% of the sample), and other (1.72% of the sample). The last demographic that was recorded was the participant's income. The participants' income consisted of $0 - $24,999 (15.52% of the sample), $25,000 - $49,999 (33.62% of the sample), $50,000-$74,999 (25.86% of the sample), $75,000-$99,999 (12.07% of the sample), and $100,000+(12.07% of the sample).

Scenarios/Manipulation Test

All participants of the study were given one of two scenarios. One scenario presented a time when Covid-19 was becoming more prevalent in the United States. The scenario was created with factors that affected investors

during the pandemic. As previously stated, positivity rates, government

intervention, and the increase in

Covid-19 cases all affected

- Scientist discover a new variant of Covid-19.
- The new variant is more contagious than previous variants.
- The new variant shows worse symptoms than previous variants.
- Governments are considering mandating shutdowns similar to the shutdowns in 2020.
- All non-essential businesses will be closed until further notice.
- Financial markets show uncertainty around the globe 📉.
- Based on the previous points, answer the following questions.

investor decisions and feelings

during the pandemic. The

literature review highlighted that

the increase in cases and an

Figure 1: Scenario Highlighting the Threat of Covid

increase in death rates

increased market volatility. With

those factors in mind, the scenario signaling an economic recession was created

as seen in Figure 1.

The second scenario presents a time when Covid-19 has become less

prevalent in the United States. The scenario presented information that was

opposite of the information scenario presented in the previous scenario. The

information presented was given to positively affect investors' perception of the

economic outlook. With this in

mind, a second scenario

- Assume the World Health Organization (WHO) and the Center for Disease Control (CDC) have declared the Covid-19 pandemic is over.
- Covid-19 cases have drastically decreased.
- A large percentage of population has developed immunity to Covid-19.
- All Covid restrictions have been lifted.
- Financial markets around the globe are gaining confidence. ☑
- Based on the previous points, answer the following questions.

signaling a strengthening

economy was created as seen

in Figure 2.

Figure 2: Scenario Highlighted the Decreasing Threat of Covid

Measures/Scales

Financial Risk Tolerance Assessment

The following risk tolerance assessment was developed by (Grable & Lytton, 1999). Grable & Lytton (1999) highlight that a survey is recommended to measure risk because a survey can have many respondents, thus eliminating response biases. The following risk tolerance assessment measures eight dimensions of risk. The dimensions of risk include guaranteed vs. probable, general risk choice, choice between sure loss and sure gain, risk as experience and knowledge, risk as a level of comfort, speculative risk, prospect theory, and investment risk. The multidimensional scale can be used on people who may be uneducated in investments since the instrument considers multiple assets and scenarios (Grable & Lytton, 1999) The risk tolerance assessment was stated to have a Cronbach alpha value of 0.7507 so the assessment was deemed reliable (Grable & Lytton, 1999). The assessment scoring can be seen below.

Table 2: Financial Risk Tolerance Assessment

Financial Risk Tolerance	Items	Scale Points
Item 1	In general, how would your best friend describe you as a risk taker? a. A real gambler b. Willing to take risks after completing adequate research. c. Cautious d. A real risk avoider	a = 4 b = 3 c = 2 d = 1
Item 2	You are on a TV game show and can choose one of the following. Which would you take? a. $1,000 in cash b. A 50% chance at winning $5,000. c. A 25% chance at winning $10,000 d. A 5% chance at winning $100,000	a = 1 b = 2 c = 3 d = 4
Item 3	You have just finished saving for a "once-in-a-lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would: a. Cancel the vacation b. Take a much more modest vacation	a = 1 b = 2 c = 3 d = 4

	c. Go as scheduled, reasoning that you need the time to prepare for a job search d. Extend your vacation, because this might be your last chance to go first-class	
Item 4	How would you respond to the following statement? "It's hard for me to pass up a bargain." a. Very true b. Sometimes true c. Not at all true	a = 1 b = 2 c = 3
Item 5	If you unexpectedly received $20,000 to invest, what would you do? a. Deposit it in a bank account, money market account, or an insured CD b. Invest it in safe high quality bonds or bond mutual funds c. Invest it in stocks or stock mutual funds	a = 1 b = 2 c = 3
Item 6	In terms of experience, how comfortable are you investing in stocks or stock mutual funds? a. Not at all comfortable b. Somewhat comfortable c. Very comfortable	a = 1 b = 2 c = 3
Item 7	Which situation would make you the happiest? a. You win $50,000 in a publisher's contest b. You inherit $50,000 from a rich relative c. You earn $50,000 by risking $1,000 in the options market d. Any of the above—after all, you're happy with the $50,000	a = 2 b = 1 c = 3 d = 1
Item 8	When you think of the word "risk" which of the following words comes to mind first? a. Loss b. Uncertainty c. Opportunity d. Thrill	a = 1 b = 2 c = 3 d = 4
Item 9	You inherit a mortgage-free house worth $80,000. The house is in a nice neighborhood, and you believe that it should increase in value faster than inflation. Unfortunately, the house needs repairs. If rented today, the house would bring in $600 monthly, but if updates and repairs were made, the house would rent for $800 per month. To finance the repairs you'll need to take out a mortgage on the property. You would: a. Sell the house b. Rent the house as is c. Remodel and update the house, and then rent it	a = 1 b = 2 c =3
Item 10	In your opinion, is it more important to be protected from rising consumer prices (inflation)	a = 1 b = 2

	or to maintain the safety of your money from loss or theft? a. Much more important to secure the safety of my money b. Much more important to be protected from rising prices (inflation)	
Item 11	You've just taken a job at a small fast growing company. After your first year you are offered the following bonus choices. Which one would you choose? a. A five year employment contract b. A $25,000 bonus c. Stock in the company currently worth $25,000 with the hope of selling out later at a large profit	a = 1 b = 2 c = 3
Item 12	Some experts are predicting prices of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value; bond prices may fall, however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high interest government bonds. What would you do? a. Hold the bonds b. Sell the bonds, put half the proceeds into money market accounts, and the other half into hard assets c. Sell the bonds and put the total proceeds into hard assets d. Sell the bonds, put all the money into hard assets, and borrow additional money to buy more	a = 1 b = 2 c = 3 d = 4
Item 13	Assume you are going to buy a home in the next few weeks. Your strategy would probably be: a. To buy an affordable house where you can make monthly payments comfortably b. To stretch a bit financially to buy the house you really want c. To buy the most expensive house you can qualify for d. To borrow money from friends and relatives so you can qualify for a bigger mortgage	a = 1 b = 2 c = 3 d = 4
Item 14	Given the best and worst case returns of the four investment choices below, which would you prefer? a. $200 gain best case; $0 gain/loss worst case b. $800 gain best case; $200 loss worst case c. $2,600 gain best case; $800 loss worst case d. $4,800 gain best case; $2,400 loss worst case	a = 1 b = 2 c = 3 d = 4
Item 15	Assume that you are applying for a mortgage. Interest rates have been coming down over the	a = 1 b = 2

	past few months. There's the possibility that this trend will continue. But some economists are predicting rates to increase. You have the option of locking in your mortgage interest rate or letting it float. If you lock in, you will get the current rate, even if interest rates go up. If the rates go down, you'll have to settle for the higher locked in rate. You plan to live in the house for at least three years. What would you do? a. Definitely lock in the interest rate b. Probably lock in the interest rate c. Probably let the interest rate float d. Definitely let the interest rate float	c = 2 d = 3
Item 16	In addition to whatever you own, you have been given $1,000. You are now asked to choose between: a. A sure gain of $500 b. A 50% chance to gain $1,000 and a 50% chance to gain nothing	a = 1 b = 3
Item 17	In addition to whatever you own, you have been given $2,000. You are now asked to choose between: a. A sure loss of $500 b. A 50% chance to lose $1,000 and a 50% chance to lose nothing	a = 1 b =3
Item 18	Suppose a relative left you an inheritance of $100,000, stipulating in the will that you invest ALL the money in ONE of the following choices. Which one would you select? a. A savings account or money market mutual fund b. A mutual fund that owns stocks and bonds c. A portfolio of 15 common stocks d. Commodities like gold, silver, and oil	a = 1 b = 2 c = 3 d = 4
Item 19	If you had to invest $20,000, which of the following investment choices would you find most appealing? a. 60% in low-risk investments 30% in medium-risk investments 10% in high-risk investments b. 30% in low-risk investments 40% in medium-risk investments 30% in high-risk investments c. 10% in low-risk investments 40% in medium-risk investments 50% in high-risk investments	a = 1 b = 2 c = 3
Item 20	Your trusted friend and neighbor, an experienced geologist, is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chance of	a = 1 b = 2 c = 3 d = 4

| | success is only 20%. If you had the money, how much would you invest?
a. Nothing
b. One month's salary
c. Three month's salary
d. Six month's salary | |

Financial Feelings

The financial feelings scale used was derived from (Devaney et al., 1996). The financial feelings scale was included because financial feelings are expected to impact behavior (Devaney et al., 1996). The higher (lower) a participant scores on the financial feelings assessment, the more (less) enhanced financial feelings the participant has. The alpha reliability was stated as .90 (Devaney et al., 1996). The assessment scoring can be seen below.

Table 3: Financial Feelings Assessment

Financial Feelings	Items	Scale Points
Item 1	I am confident about managing my money.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 2	I am anxious about finances.	4 = strongly disagree 3 = disagree 2 = agree 1 = strongly agree
Item 3	I am comfortable about spending.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 4	I am confident to set priorities.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 5	I find it easy to make decisions.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree

Item 6	I know where to get financial assistance.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 7	I have the ability to solve problems.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 8	I can identify appropriate goals.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 9	I achieve the goals I set.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree
Item 10	I have the skills to positively affect change.	1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree

Long-Term Orientation Scale

The questionnaire used in this study implemented a long-term orientation scale developed by (Bearden et al., 2006). The author states the scale was created, "based on the need for reliable measures to assess time orientation, as well as the need to provide researchers with a tool to examine differences in behavior caused by long term orientation among individuals" (Bearden et al., 2006. pp. 1). The scale used two factors including tradition and planning (Bearden et al., 2006). The coefficient alpha reliability estimates were stated as .88 (tradition) and .62 (planning) (Bearden et al., 2006). The question scoring for the long-term orientation scale can be seen below. The higher (lower) an individual scores, the more (less) long term oriented the participant is (Bearden et al., 2006).

Table 4: Long-Term Orientation Assessment

Long Term Orientation	Items
1 = Strongly Disagree, 2 = Disagree, 3= Neither Agree Nor Disagree, 4 = Agree, 5 = Strongly Agree	
Item 1	I value a strong link to my past.
Item 2	I do not mind giving up today's fun for success in the future.
Item 3	Family Heritage is important to me.
Item 4	I plan for the long term.
Item 5	Traditional values are important to me.
Item 6	I work hard for success in the future.
Item 7	Persistence is important to me.
Item 8	Respect for tradition is important to me.

Dark Triad Personality Traits

The questionnaire used in the study was developed by (Jonason & Webster, 2010). The scale was developed to simplify the assessment of dark triad personality traits (Jonason & Webster, 2010). The 12-item scale examines the level of dark triad personality trait a participant possesses. Each item pertains to a particular factor of the dark triad. The higher (lower) a participant scores on the assessment, the higher (lower) level of dark triad personality traits present. The authors reported a Cronbach's alpha of .83 for the 12-item assessment. Given the high value of Cronbach's alpha, the 12-item assessment is deemed valid. The assessment scoring can be seen below.

Table 5: Dark Triad Personality Trait Assessment

Dark Triad Personality Traits	Item	Factor
1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree Nor Disagree, 4 = Agree, 5 = Strongly Agree		Machiavellianism, narcissism, and psychopathy
Item 1	I tend to manipulate others to get my way.	Machiavellianism
Item 2	I tend to be callous or insensitive.	Machiavellianism & psychopathy
Item 3	I tend to seek prestige or status.	narcissism
Item 4	I tend to lack remorse.	psychopathy
Item 5	I tend to want others to admire me.	narcissism
Item 6	I have used flattery to get my way.	Machiavellianism
Item 7	I tend to be cynical.	psychopathy
Item 8	I have used deceit or lied to get my way.	Machiavellianism
Item 9	I tend to not be too concerned with morality or the morality of my actions.	psychopathy
Item 10	I tend to want others to pay attention to me.	narcissism
Item 11	I tend to exploit others towards my own end.	Machiavellianism
Item 12	I tend to expect special favors from others.	narcissism

Preference for Consistency

The questionnaire used in this study implemented a preference for

consistency scale developed by (Cialdini et al., 1995). The author states that in

present-day research, explanations based on consistency are rarely used

(Cialdini et al., 1995). Despite the rare use of consistency-based explanations for

human behavior, the author discussed that consistency-based explanations can

be used for a wide range of human behavior (Cialdini et al., 1995). Considering

the previous statement, the scale was implemented to examine participants'

preference for consistency and its relationship to Covid-19 and the presence of

dark triad personality traits. The author highlights that the 18-item scale has a

Cronbach's alpha of .89 (Cialdini et al., 1995). Given the high value for the

Cronbach alpha, the scale was deemed valid. The assessment scoring can be

seen below. The higher a participant scores on the preference for consistency

assessment, the higher preference for consistency the participant has (Cialdini et

al., 1995).

Table 6: Preference for Consistency Assessment

Preference for Consistency	Item
1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree Nor Disagree, 4 = Agree, 5 = Strongly Agree	
Item 1	I want my close friends to be predictable.
Item 2	I want to be described by others as a stable, predictable person.
Item 3	I typically prefer to do things the same way.
Item 4	The appearance of consistency is an important part of the image I present to the world.
Item 5	I am uncomfortable holding two beliefs that are inconsistent.
Item 6	I dislike people who are constantly changing their opinions.
Item 7	It does not bother me much if my actions are inconsistent.
Item 8	I make an effort to appear consistent to others.
Item 9	I prefer to be around people whose reactions I can anticipate.
Item 10	I do not like to appear as if I am inconsistent.
Item 11	It is important to me that those who know me can predict what I will do.

Item 12	It is important to me that my actions are consistent with my beliefs.
Item 13	Admirable people are consistent and predictable.
Item 14	An important requirement for any friend of mine is personal consistency.
Item 15	It is important to me that others view me as a stable person.
Item 16	It bothers me when someone I depend on is unpredictable.
Item 17	I get uncomfortable when I find my behavior contradicts my beliefs.
Item 18	Even if my attitudes and actions seemed consistent with one another to me, it would bother me if they did not seem consistent in the eyes of others.

Need To Evaluate

The questionnaire used in the study implemented the Need to Evaluate

scale developed by (Jarvis & Petty, 1996). The author stated that the primary

goal of developing the scale was, "to examine the hypothesis that individuals

differ in the extent to which they chronically engage in evaluative responding"

(Jarvis & Petty, 1996. pp. 172). Upon the completion of the study, the

researchers created a scale that accurately measured one's need to evaluate.

The higher (lower) a participant scores on the need to evaluate assessment, the

higher (lower) the need to evaluate is present. The 16-item scale was found to

have a Cronbach Alpha of .87 highlighting the scale's validity (Jarvis & Petty,

1996). The assessment scoring can be seen below.

Table 7: Need to Evaluate Assessment

Need to Evaluate	**Item**
1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree Nor Disagree, 4 = Agree, 5 = Strongly Agree	
Item 1	There are many things for which I do not have a preference.

Item 2	I like to have strong opinions even when I am not personally involved.
Item 3	I enjoy strongly liking and disliking new things.
Item 4	I would rather have a strong opinion than no opinion at all.
Item 5	I form opinions about everything.
Item 6	I often prefer to remain neutral about complex issues.
Item 7	If something does not affect me, I do not usually determine if its good or bad.
Item 8	I only form strong opinions when I have to.
Item 9	I like to decide that new things are really good or really bad.
Item 10	It bothers me to remain neutral.
Item 11	I pay a lot of attention to whether things are good or bad.
Item 12	I prefer to avoid taking extreme options.
Item 13	I am pretty much indifferent to many important issues.
Item 14	It is very important to me to hold strong opinions.
Item 15	I want to know what exactly what is good and bad about everything.
Item 16	I have many more opinions than the average person.

Analysis/Findings

Manipulation Test

In the survey, participants were presented with one of two scenarios. As previously mentioned, one scenario represented a perceived recession and the other represented a perceived economic boom or strengthening market. As seen in Figure 3, the scenario(s) had a significant effect on how survey participants

perceived the condition of the financial market ($F_{(1,114)}$ =-39.96, $p < .00$). All

participants who received the scenario signaling a strengthening economy

perceived it as a

strengthening

economy (M=1,

SD=0). The majority

of participants who

received the scenario

signaling a recession
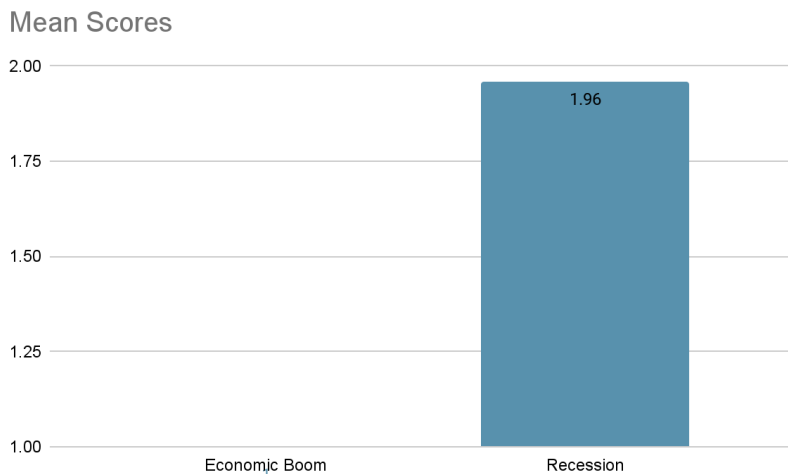
perceived it as such

(M=1.96, SD=.18).

Figure 3: Manipulation Test

Considering there was a statistically significant difference between the group who

received the scenario which signaled a recession and the group who received

the scenario which signaled an economic boom, the manipulation test accurately

gauged the perception of participants. The success of the manipulation test

suggests that the threat of Covid-19 has a significant effect on investors'

perception of the economic outlook. The threat of Covid-19 negatively impacted

investors' economic perception while the decreasing threat of Covid-19 positively

impacted investor's economic perception.

It was important that the manipulation test was successful to correctly

measure the financial feelings induced by the threat of Covid-19 on financial

markets.

Covid-19, Need to Evaluate, and Financial Risk Tolerance

The next relationship that was examined was the relationship between Covid-19, the need to evaluate, and financial risk tolerance. A t-test was conducted to find significant differences in Financial Risk Tolerance between groups with a lower need to evaluate and a higher need to evaluate. The t-test analyzed the differences only in participants who received the scenario signaling a recession. The t-test highlighted that there is a significant difference in financial risk tolerance scores between participants with a lower need to evaluate and a higher need to evaluate ($F(1,57) = 2.15$, $p < 0.017$). Figure 4 shows that participants with a lower need to evaluate had significantly higher financial risk tolerance (M=38.3, SD=5.14) compared to participants with a higher need to evaluate (M=34.69, SD = 7.56). Considering there was a statistically significant difference, hypothesis 2 was supported.
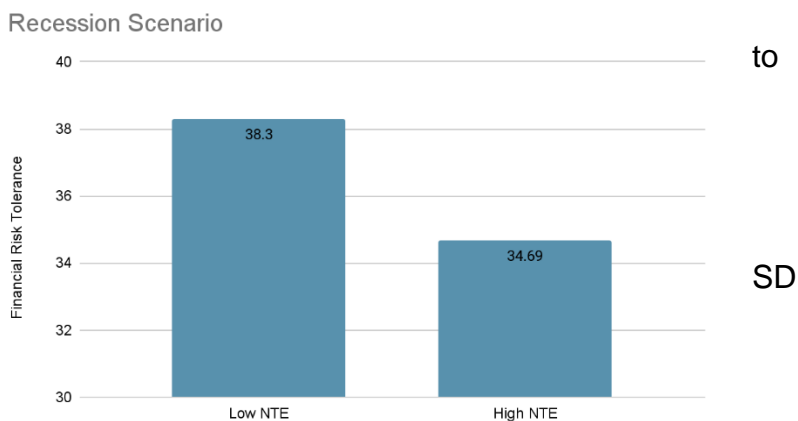

Figure 4: Covid-19, Need to Evaluate, and Financial Risk Tolerance

The findings suggest that during a time when there is economic uncertainty or the threat of a recession is present, investors with a lower need to evaluate will have a higher risk tolerance. Inversely, investors with a higher need to evaluate will have lower financial risk tolerance.

Covid-19, Financial Feelings, and Dark Triad Personality Traits

The next relationship that was examined was the relationship between Covid-19, Financial Feelings, and Dark Triad personality traits. A t-test was conducted to find statistically significant differences in financial feelings between participants with lower levels of dark triad personality traits versus participants with higher levels of dark triad personality traits.

The t-test highlighted that in the group of participants who received the scenario signaling a recession, there is a statistically significant difference in financial feelings between participants who displayed higher levels of dark triad personality traits versus participants with low levels of dark triad personality traits (F (1, 57) = 1.74, p <.04). Figure 5 shows that participants who display high levels of dark triad personality traits exhibited lower levels of financial feelings (M=23.29, SD=8.29) compared to participants who displayed lower levels of dark triad personality traits (M=26.63, SD=6.37). Considering there is a statistically

significant difference between participants who exhibited low levels of dark triad personality traits compared to participants with higher levels of dark triad personality traits, H1 was supported.
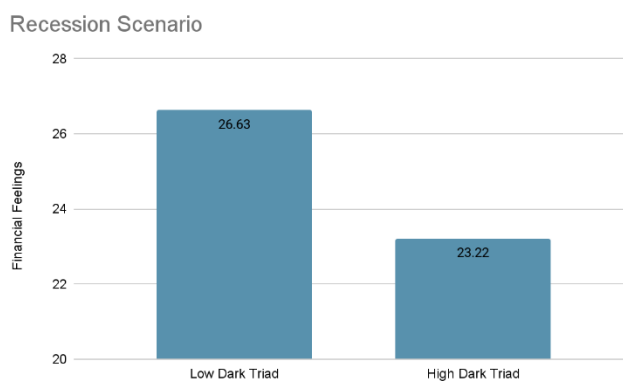

Figure 5: Covid-19, Financial Feelings, and Dark Triad Personality Traits

Based upon the findings, investors that display higher levels of dark triad personality traits will have lower levels of financial feelings during a time of economic uncertainty such

as Covid-19. Contrarily, investors that display low levels of financial feelings will have more enhanced financial feelings during a time of economic uncertainty such as Covid-19.

Covid-19, Preference for Consistency, and Dark Triad Personality Traits

Another relationship that was examined was the relationship between Covid-19, investors' preference for consistency, and dark triad personality traits. A t-test was used to find statistically significant differences in investors' preference for consistency between investors with low levels of dark triad personality traits and high levels of dark triad personality traits.

The results of the t-test found there is a significant difference in investor's preference for consistency between participants with low levels of dark triad personality traits and high levels of dark triad personality traits ($F(1,57) = 1.88$, $p < .03$). Figure 6 shows that participants with high levels of dark triad personality traits had a statistically significant lower preference for consistency score (M = 61.88, SD = 10.62) compared to participants with low levels of dark triad personality traits (M=67.48, SD = 12.34).
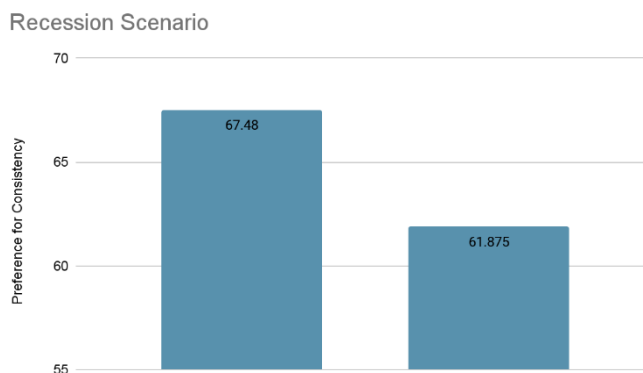

Figure 6: Covid-19, Preference for Consistency, and Dark Triad Personality Traits

The findings suggest that investors with high levels of dark triad personality traits will have a lower level of preference for consistency during a time of economic uncertainty such as Covid-19. Contrarily, investors with lower

levels of dark triad personality traits will have a lower preference for consistency during a time of economic uncertainty such as Covid-19.

Despite the finding of a statistically significant relationship between Covid-19, Dark Triad personality traits, and an individual's preference for consistency, the research does not suggest that the presence of dark triad personality traits and the threat of Covid-19 have a causal relationship with an individual's preference for consistency. Psychological factors other than personality traits could play a role in an individual's preference for consistency as mentioned in the literature review.

Dark Triad Personality Traits and Financial Risk Tolerance

The next relationship being examined is the relationship between dark triad personality traits and financial risk tolerance. A t-test was conducted to find a statistically significant difference in financial risk tolerance between participants with low levels of dark triad personality traits compared to participants with high levels of dark triad personality traits.

The t-test found that there is a statistically significant difference in financial risk tolerance scores between participants with low levels of dark triad personality traits compared to participants with high levels of dark triad personality traits ($F_{(1,114)} = -2.25$, $p < 0.01$). Figure 7 shows that participants that displayed higher levels of dark triad personality traits displayed statistically
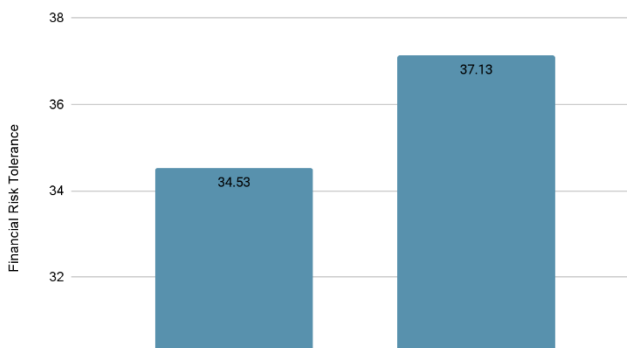

Figure 7: Dark Triad Personality Traits and Financial Risk Tolerance

significantly higher levels of financial risk tolerance (M= 37.13, SD = 6.27) compared to participants with low levels of dark triad personality traits (M=34.53, SD = 6.07). H3 can be supported since there was a statistically significant difference.

These findings suggest that investors that display higher levels of dark triad personality traits will be willing to take on more financial risk. Vice versa, investors that exhibit lower levels of dark triad personality traits will be less willing to partake in risky investor behavior.

Despite the statistically significant relationship found between dark triad personality traits and financial risk tolerance, the research does not suggest that dark triad personality traits directly influence investor decisions. The survey instrument did not contain items that directly measured participants' investment decisions. Participants were only given hypothetical decisions in the risk tolerance scale. Additionally, there could be other factors that influenced participants' financial risk tolerance other than the presence of high levels of dark triad personality traits.

Long Term Orientation and Financial Feelings

The last relationship being examined is the relationship between an individual's long-term orientation and financial feelings. A t-test was conducted to find statistically significant differences in an individual's financial feelings between individuals who displayed low scores of long-term orientation and individuals who displayed high scores of long-term orientation.

The t-test found that there is a statistically significant difference in financial feeling scores in individuals who exhibited low levels of long-term orientation compared to individuals who exhibited elevated levels of long-term orientation (F (1, 114) = -3.1137, $p < .0012$). Figure 8 shows that participants with lower long-term orientation have significantly lower average financial feelings score (M=22.55, SD=7.90) than the average scores of the individuals who

Figure 8:Financial Feelings and Long-Term Orientation

displayed higher levels of long-term orientation (M=26.63, SD=6.23).

The findings suggest that individuals with less long-term orientation have less enhanced financial feelings. On the other hand, individuals who are more long-term oriented have more enhanced financial feelings. The findings do not suggest that long term orientation has a causal relationship with financial feelings. The findings highlight that there was a statistically significant difference in financial feelings among individuals who are less long term oriented compared to individuals who are more long term oriented.

Conclusions

The study found that there are statistically significant relationships between Covid-19, Dark Triad Personality Traits, financial feelings, the need to

evaluate, and preference for consistency. During a time of financial uncertainty such as Covid-19, individuals who exhibited higher levels of dark triad personality traits had lower financial feelings, and a lesser preference for consistency. Individuals who displayed higher levels of dark triad personality traits also had a larger risk tolerance. Additionally, individuals who are more long term oriented have more enhanced financial feelings. This research evaluated relationships to help better understand the relationship between Dark Triad Personality traits and risk among other factors.

Theoretical Implications

The literature highlights prospect theory and that investors are generally risk averse and they are more likely to make investment decisions that decrease the chance of a loss. The results highlight that investors with dark triad personality traits have a lower preference for consistency and less enhanced financial feelings during a time of economic uncertainty. Additionally, the study highlighted that investors with high levels of dark triad personality traits have a higher financial risk tolerance than investors with lower levels of financial risk tolerance. Given the findings, investors with high levels of dark triad personality traits may not align with prospect theory. Since investors with high levels of dark triad personality traits have a higher financial risk tolerance, they may be less likely to make decisions to decrease the chance of a loss. Further research would need to be conducted to examine the relationship between investors with dark triad personality traits and prospect theory.

Practical Implications

The results suggest that psychological factors such as personality traits can have a significant impact on investors during a time of economic uncertainty such as Covid-19. There are broad implications that financial service professionals must take into consideration during a time of economic uncertainty. For example, this research found that psychological/behavioral factors have significant effects on investors' risk tolerance. Financial advisors must consider psychological factors and their influences when servicing their clients during a time of economic uncertainty.

Financial service professionals should understand that not all clients will have the same market and their market outlook is influenced by many different factors such as psychological factors. The use of multiple measurement scales such as financial risk tolerance and Dark Triad personality traits can help financial service professionals better measure risk tolerance in an attempt to predict behavior under a given market condition. Knowing that clients with Dark Triad Personality traits are prone to make more risky financial decisions, even in a time of market uncertainty, the use of personality scales can help financial service professionals shift their focus to the clients who will need the most guidance during a declining market.

Additionally, the use of personality trait assessments in the financial service industry can help financial service professionals better understand their client's personality which can be used to better understand how their clients communicate with others (Fallaw, 2021). The better that financial service

professionals can understand their client's behavior and communication, the better they can serve their clients and improve financial recommendations.

Research Limitations/Future Research

This study looked at how participants self-reported their financial risk tolerance through the Financial Risk Tolerance Assessment. The Financial Risk Tolerance assessment proposes hypothetical situations that examine the risk someone is willing to take for a given amount of money and what investors would do with their money. Given that the situations are hypothetical, it is uncertain if participants would engage in risky financial behavior in a real-world situation. Future research could propose more realistic real-life investment scenarios to gauge the amount of financial risk participants are willing to engage in. The use of real-world investment scenarios could allow researchers to see if investors with certain personality traits, such as the Dark Triad Personality traits, are more likely to engage in risky financial behavior compared to investors with lower levels of a given personality trait.

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