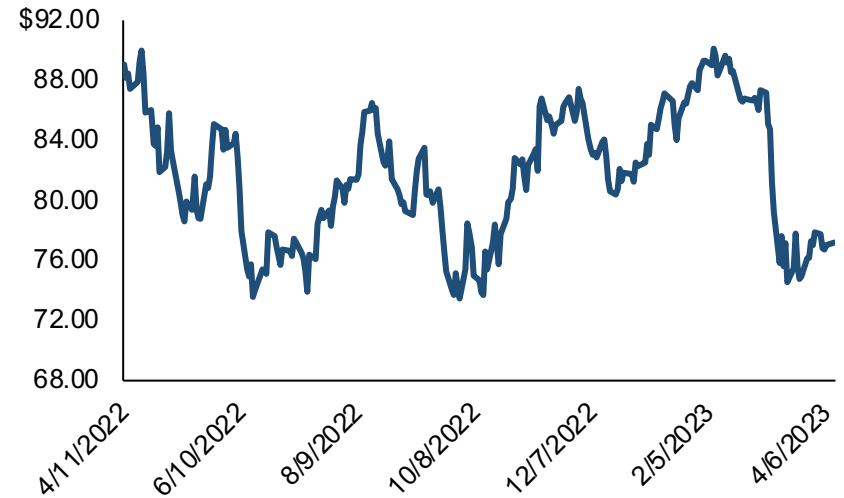


VFH US Equity | One-Year Price Chart



Position Details

- Vanguard Financials ETF | VFH US Equity
- Underlying Price: \$77.23
- Bear Put Spread
- Expiration Date: November 23, 2023

Equity Derivatives Sector

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Table of Contents

- I. Product & Position Overview
- II. Macroeconomic Thesis
- III. Risk Analysis
- IV. Technical Bias & Fair Value
- V. Volatility Analysis
- VI. Capital Allocation



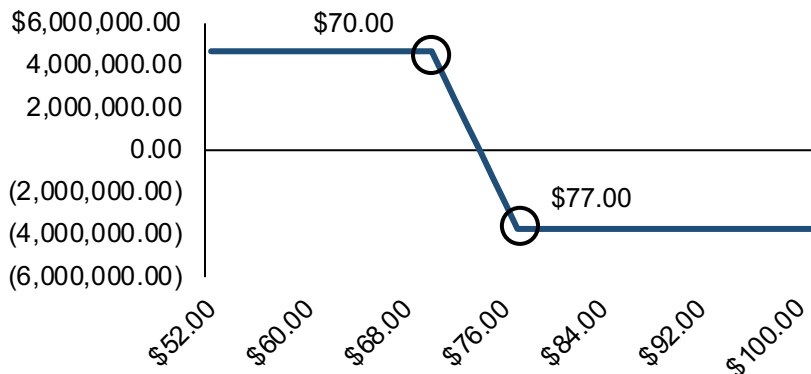
I. Product & Position Overview

Product & Position Overview

Product Description

- **Vanguard Financials ETF**
 - The Fund seeks to provide returns that correspond with the performance of the MSCI US Investable Market Financials Index, holding each stock in the same proportion
 - Major industries include Banks, Insurance, and Diversified Financials, at 42.17%, 29.41%, and 18.56%, respectively
- **Top Four Constituents**
 - JPMorgan Chase & Co (JPM) | 8.91%
 - Berkshire Hathaway Inc (BRK.B) | 8.42%
 - Bank of America Corp (BAC) | 5.25%
 - Wells Fargo & Co (WFC) | 3.78%

Payoff Diagram



Trade Breakdown

- **Bear Put Spread**
 - This trade benefits from adverse price movements in the underlying ETF
- **Setup**
 - We Buy – 12.00 k ATM \$77.00 Puts | VFH US Equity
 - We Sell – 12.00 k OTM \$70.00 Puts | VFH US Equity
 - Max Profit: \$4,680,000.00
 - Max Loss: (\$3,720,000.00)
- **Expiration**
 - Date: November 23, 2023

Exit Strategy & Potential Hedge Strategy

- **Bull Base & Bear Case**
 - **\$70.00 / \$73.00 / \$77.00**
 - Breakeven – \$73.90
- **Methodology**
 - The base and bull case would represent a ~5.50% and ~9.40% decrease in the underlying ETF, respectively
- **Hedge Strategy**
 - If the underlying begins to experience bullish price movement, the Sector will reverse trade or purchase more Financials Sector ETF shares in order to minimize losses



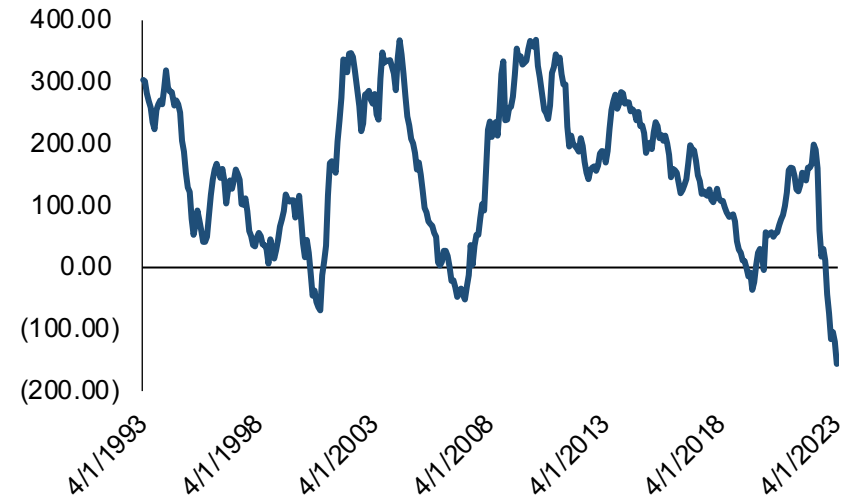
II. Macroeconomic Thesis

Macroeconomic Thesis

Macroeconomic Summary

- **Financial Institutions Begin to Tighten Lending**
 - Since July 2022, the number of banks that have reported tightening has doubled to nearly ~43.00%
 - Higher standards were observed across real estate lending to auto loans and credit cards
 - Analysts at Morgan Stanley predict the commercial property prices could fall as much as 40.00%, rivaling the decline during the 2008 financial crisis
- **Increase in Consumer Delinquencies and Defaults**
 - Americans have exhausted about half of the savings accumulated during the pandemic, going from ~\$2.10 T in excess savings to ~\$760.00 bn as of 4Q2022
 - The percent of U.S. credit card holders carrying debt has increased to 46.00% m/m, up 39.00% y/y
 - The financing rate on consumer installments for 60.00-month loans on new autos has increased by ~65.50% y/y
- **Hawkish Federal Reserve Decreases Economic Demand**
 - WIRP is currently pricing in a ~73.00% probability that the Federal Reserve raises interest rates by 25.00 bps in the next FOMC meeting on May 3rd, 2023
 - Fed President James Bullard stated economic data has been generally stronger than expected during 1Q2023 and inflation remains too high
 - Costco Wholesale Corporation (COST) reported its first same store sales drop in three years this past month while the size of the average sale fell 5.80%, signaling high rates may finally be weighing on consumer disposable income

10 Year – 3 Month Treasury Yield Spread (bps) | 30.00 Year Chart



Market Pros & Cons

- Increased Balance Sheet Audits Decrease Stock Prices
- Bank Deposit Outflows Accelerate in the Coming Months
- Earnings Beat Analyst Estimates Due to Lower Bar
- Hard Landing Avoided Causing Inflows into Equities



III. Risk Analysis

Risk Analysis

Directional & Magnitude Risk

- **Delta Analysis**

- The trade is short Delta with a value of (0.1373)
 - For every \$1.00 change in the underlying ETF, the options contract will gain or lose \$0.137
 - The \$77.00 put has a negative delta, while the \$70.00 put has a positive delta

- **Gamma Analysis**

- The trade has a positive Gamma of 0.0030
 - High volatility benefits the \$77.00 put but hurts the \$70.00 put, resulting in a small Gamma value

Implied Volatility Risk

- **Vega Analysis**

- The trade is long Vega with a value of 0.0416
- Implied volatility input for the trade is 26.00%
- Vega is positive for long options while it is negative for short options, regardless of whether it is a call or put
 - Vega is lower for this trade because higher implied volatility benefits the long puts but hurts the short puts, canceling each other. However, Vega is slightly positive because the value of the long put legs is larger than the short put legs

Time Risk

- **Theta Analysis**

- The trade is short Theta with a value of (0.0040)
- Theta decay benefits the short put legs of this trade while hurting the long put legs, resulting in a net short Theta value. As time till expiration decreases, the chance of the long puts landing ITM decreases, diminishing the value of the trade
 - Therefore, Theta will be the closest to 1.00 when the underlying ETF decreases to \$70.00 per share

Interest Rate Risk

- **Rho Analysis**

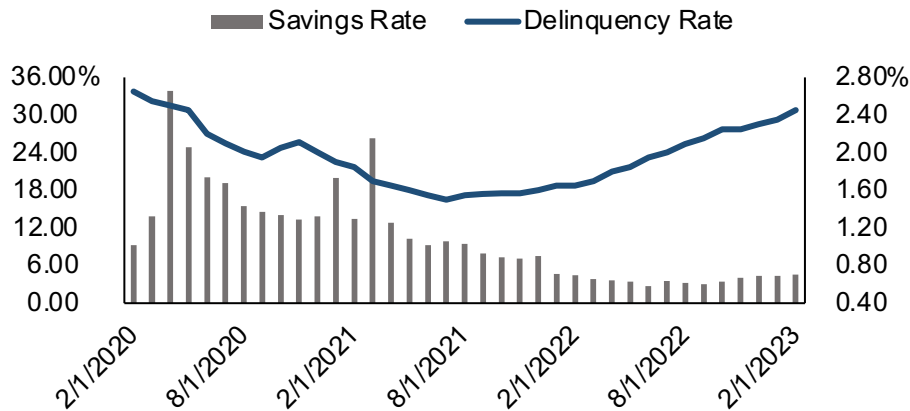
- The trade is short Rho with a value of (0.1217)
- The value of put options generally decrease when interest rates rise. The trade consists of one long put and one short put, causing premiums to decrease when interest rates rise
 - The Sector is the net payer of premiums for the trade since the premiums paid are greater than premiums received. Therefore, an increase in the risk-free rate will hurt the trade because the opportunity to invest in other assets goes away



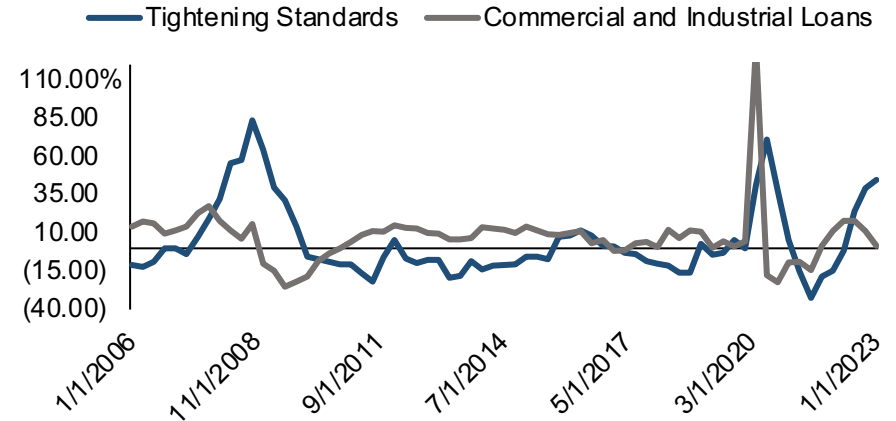
IV. Technical Bias & Fair Value

Technical Bias & Fair Value

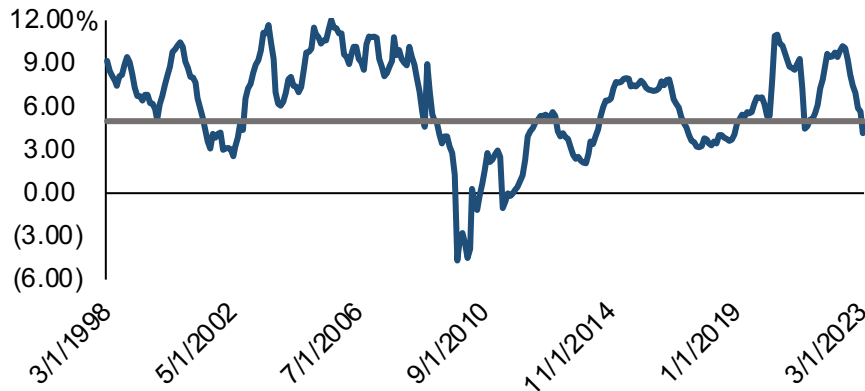
Personal Savings Rate vs Credit Delinquency Rate | Three-Year Chart



Bank Tightening Standards vs C&I Loans | 17.00 Year Chart



U.S. Bank Credit Growth | 25.00 Year Chart



Synopsis

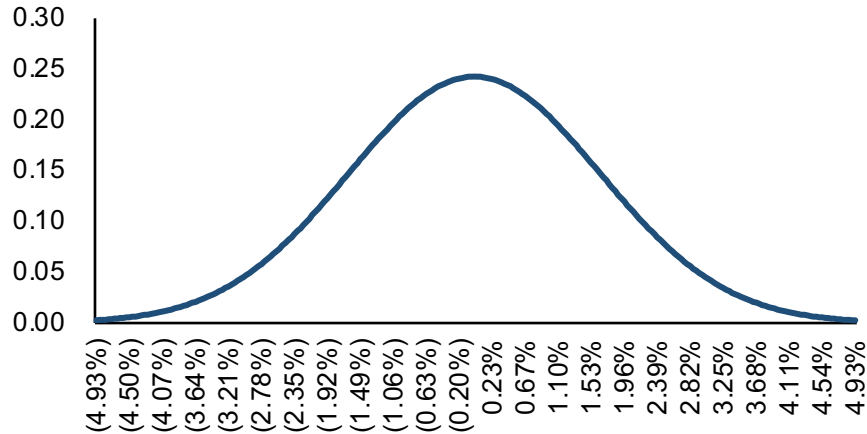
- U.S. savings accumulated during pandemic relief efforts have depleted and dropped below pre-pandemic levels, while the delinquency rate of credit card loans has begun nearing all-time highs
- Loan growth tends to slow down following an increase in the net percentage of banks reporting a tightening of lending standards.
- Many banks started tightening loan standards towards the end of 2022 and these trends have continued into and throughout 2023
 - Recently, bank credit growth in the United States has fallen below the long-term average of 5%, which has been associated with every recession since the 1970s



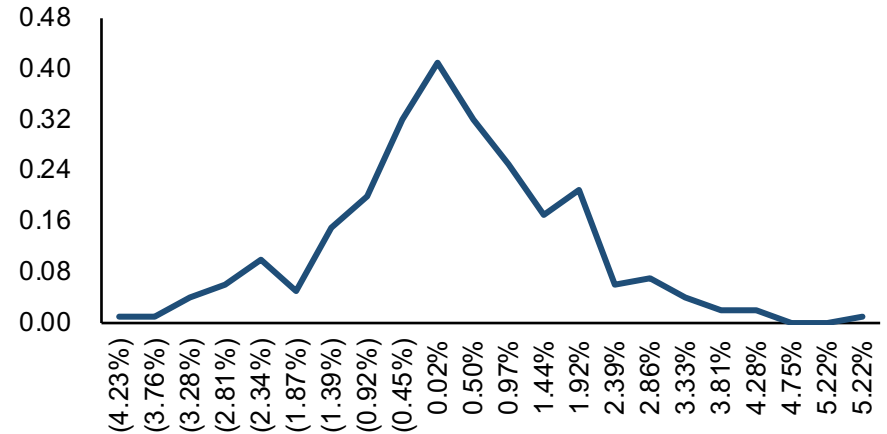
V. Volatility Analysis

Volatility Analysis

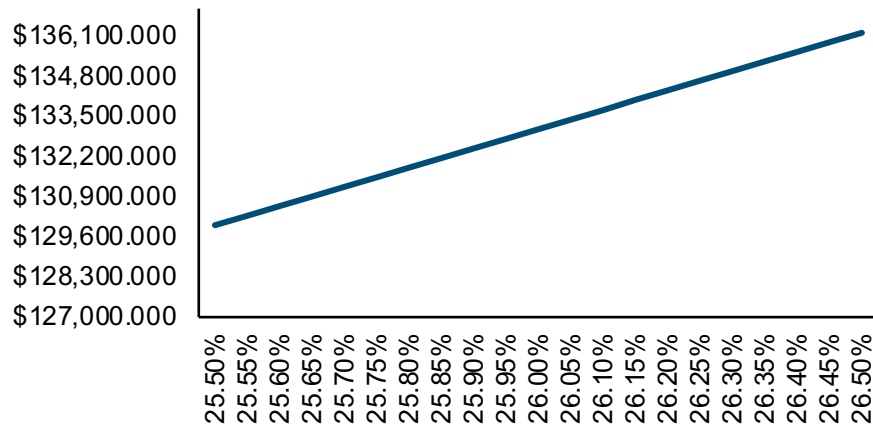
Expected Theoretical Daily Return Distribution



Historical Daily Return Distribution



Position Volatility Sensitivity



Theoretical Edge Analysis

Asset Description	Option Premium
Theoretical Long Put	\$6.4200
Actual Long Put	\$5.5000
Theoretical Short Put	\$3.2100
Actual Short Put	\$2.4000
Theoretical Long Put Adj. for DV1	\$642.0000
Actual Long Put Adj. for DV1	\$550.0000
Theoretical Short Put Adj. for DV1	\$321.0000
Actual Short Put Adj. for DV1	\$240.0000
Theoretical Edge (LP) Assuming 100.00 k Contracts	\$575,000.0000
Theoretical Edge (SP) Assuming 100.00 k Contracts	(\$506,250.0000)
Total Theoretical Edge	\$68,750.0000



VI. Capital Allocation

Capital Allocation

