

The background of the slide is a photograph of a server room. It shows rows of server racks with numerous small, glowing lights in various colors (blue, green, red, yellow) against a dark background, creating a sense of depth and technology.

Interactive Brokers Webcast

VIX[®] Spread Trading

May 18, 2016
Presented by Russell Rhoads, CFA
Director of Education

Disclosure

Options involve risks and are not suitable for all investors. Prior to buying or selling an option, an investor must receive a copy of Characteristics and Risks of Standardized Options. Copies are available from your broker or from The Options Clearing Corporation at www.theocc.com<<http://www.theocc.com>>. Futures trading is not suitable for all investors, and involves risk of loss. The information in this presentation is provided solely for general education and information purposes. No statement within this presentation should be construed as a recommendation to buy or sell a security or futures contract or to provide investment advice. Any strategies discussed, including examples using actual price data, are strictly for illustrative and educational purposes only. In order to simplify the computations, commissions, fees, margin interest and taxes have not been included in the examples used in this presentation. These costs will impact the outcome of all transactions and must be considered prior to entering into any transactions. Multiple leg strategies involve multiple commission charges. Investors should consult with their tax advisors to determine how the profit and loss on any particular strategy will be taxed. Past performance does not guarantee future results.

CBOE, Chicago Board Options Exchange, CBOE Volatility Index and VIX are registered trademarks and The Options Institute and Weeklys are service marks of Chicago Board Options Exchange, Incorporated (CBOE). S&P 500® is a registered trademark of Standard & Poor's Financial Services, LLC and has been licensed for use by CBOE and CBOE Futures Exchange, LLC. Financial products based on S&P indices are not sponsored, endorsed, sold or promoted by Standard & Poor's, and Standard & Poor's makes no representation regarding the advisability of investing in such products. CBOE is not affiliated with Interactive Brokers. This presentation should not be construed as an endorsement or an indication by CBOE of the value of any non-CBOE product or service described in this presentation.

Copyright © 2016 CBOE. All rights reserved.

VIX Spread Trading

Overview

- **VIX Index Option Primer**
- **VIX WeeklysSM**
- **Directional Spreads**
- **VIX Covered Call**
- **Ratio Spreads**
- **Risk Reversals**
- **Summary / Q&A**
- **Contact Info**

VIX Index Option Primer

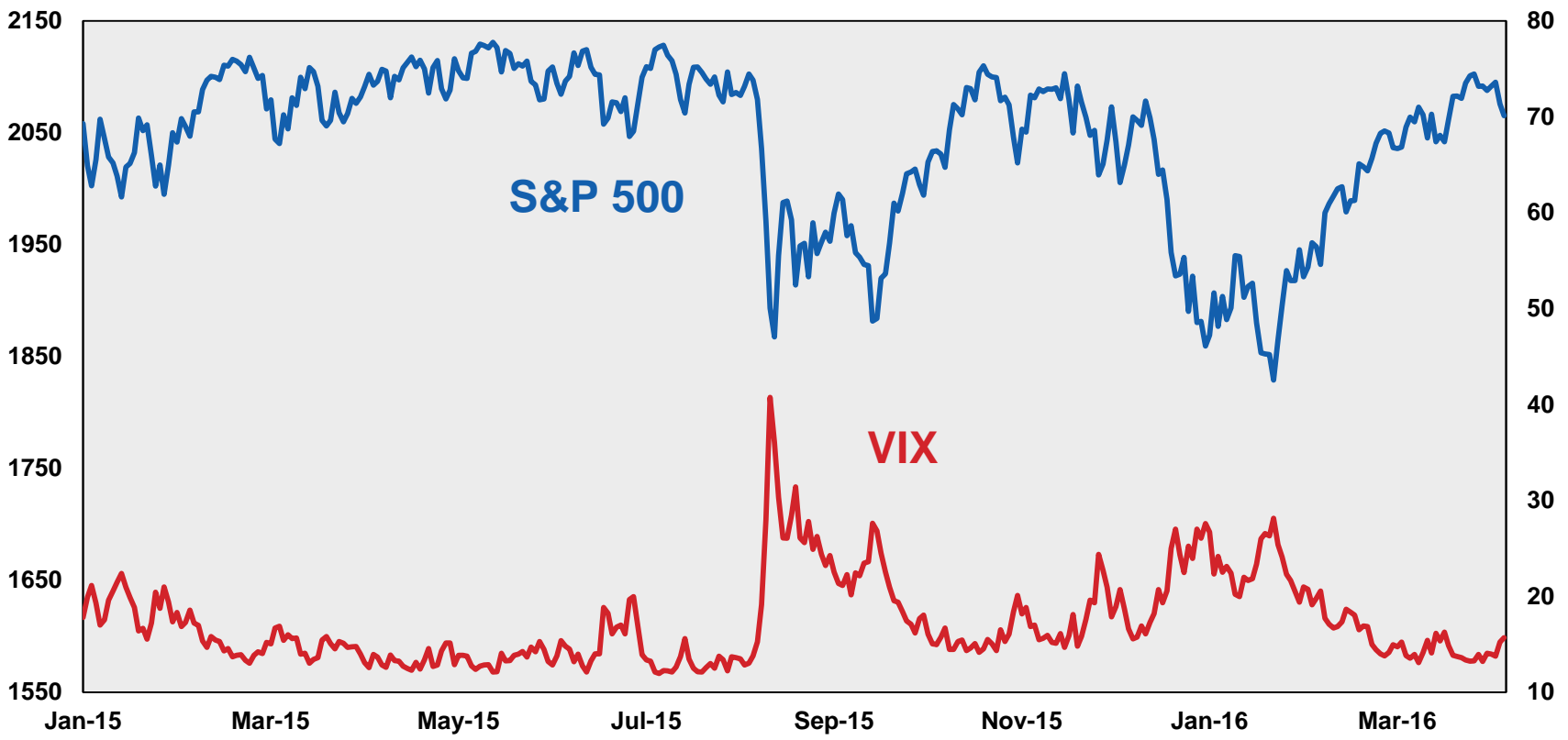
Overview

- ▶ **The CBOE Volatility Index[®] or VIX is a 30 day measure of implied volatility as indicated by SPX option prices**
- ▶ **VIX is often cited in the business press when the S&P 500 is under pressure**
- ▶ **Due to having an inverse relationship with the S&P 500 VIX is often referred to as the ‘fear index’**
- ▶ **There are derivatives that trade based on the value of VIX or VIX-related strategies such as options, futures, and exchange traded products**

VIX Index Option Primer

Price Action

VIX vs. SPX – Daily January 2015 – April 2016



VIX Index Option Primer

Description

- VIX options are cash-settled index options similar to SPX option contracts
- These options share a settlement value with VIX Futures that share an expiration date
- They also share the same forward volatility measure for valuation purposes

Due to this valuation metric, VIX options may appear to be mispriced.

VIX Index Option Primer

Pricing

Pricing January 4th –

VIX @ 13.80

VIX Apr 20 Put @ 3.50

$$20.00 - 3.50 = 16.50$$

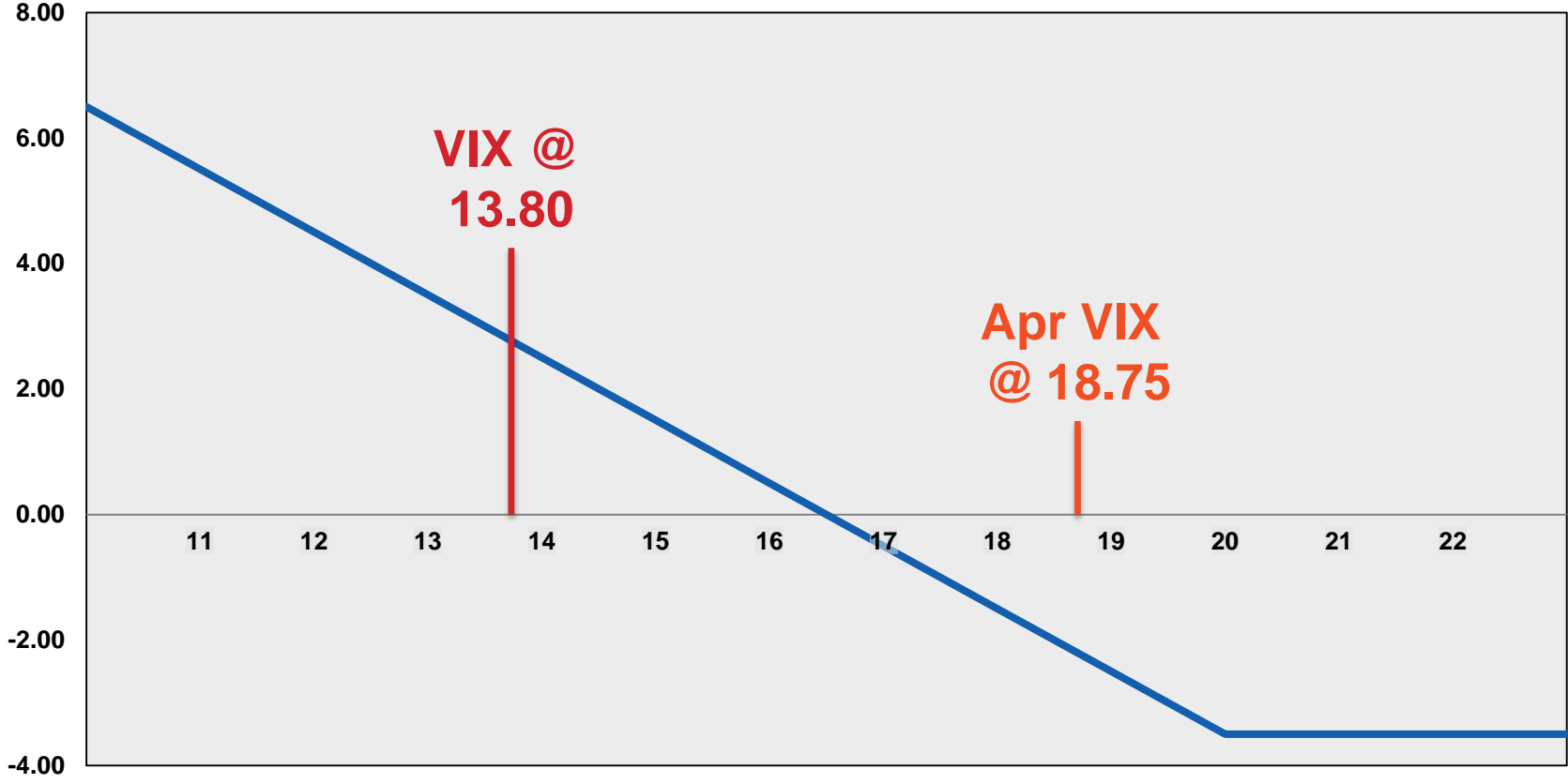
Apr VIX Future @ 18.75

**The best underlying pricing for VIX options
is the corresponding VIX future**

VIX Index Option Primer

Pricing

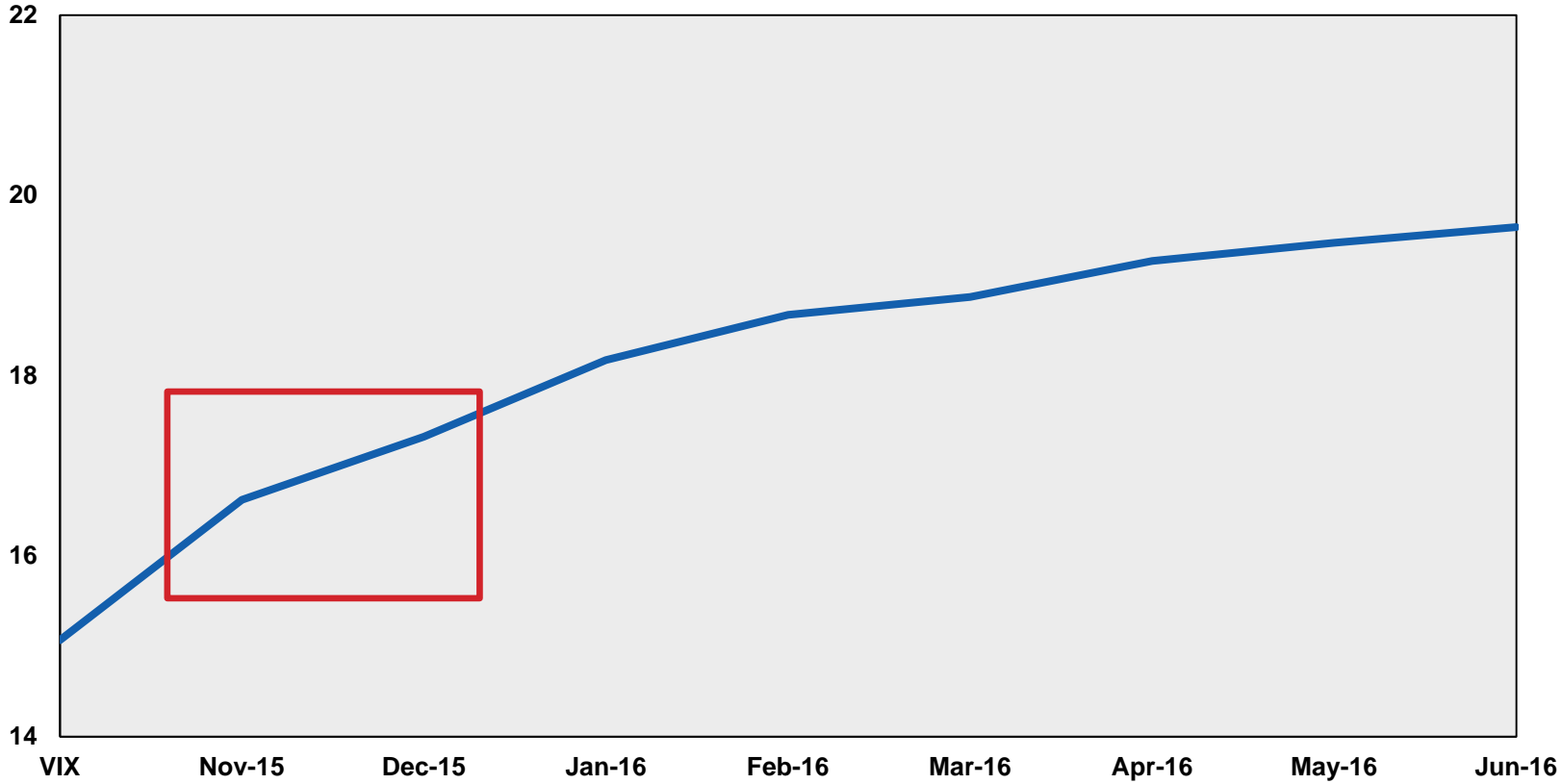
Payoff – Long Apr 20 Put @ 3.50



VIX Index Option Primer

Contango / Backwardation

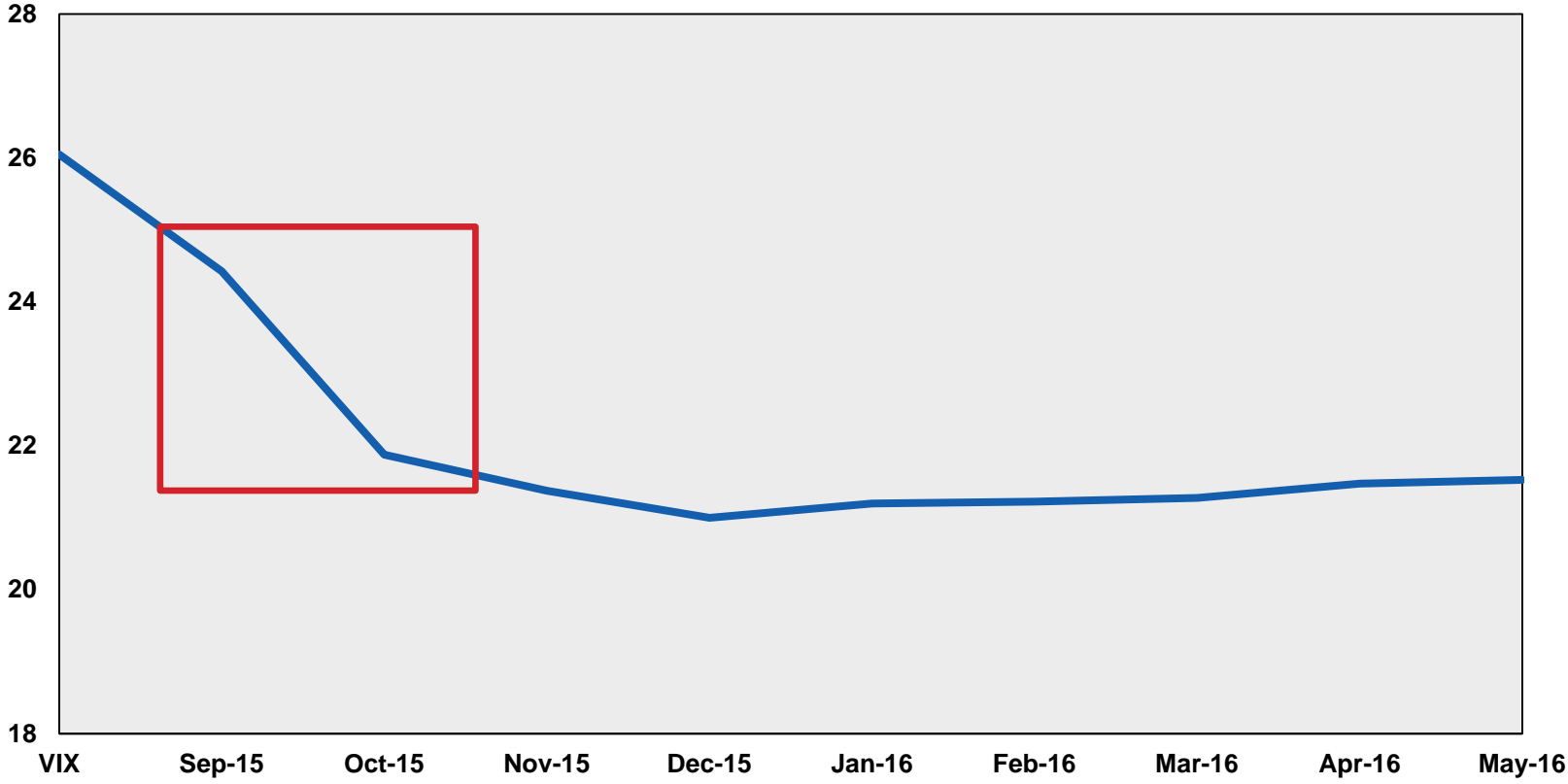
Contango



VIX Index Option Primer

Contango / Backwardation

Backwardation



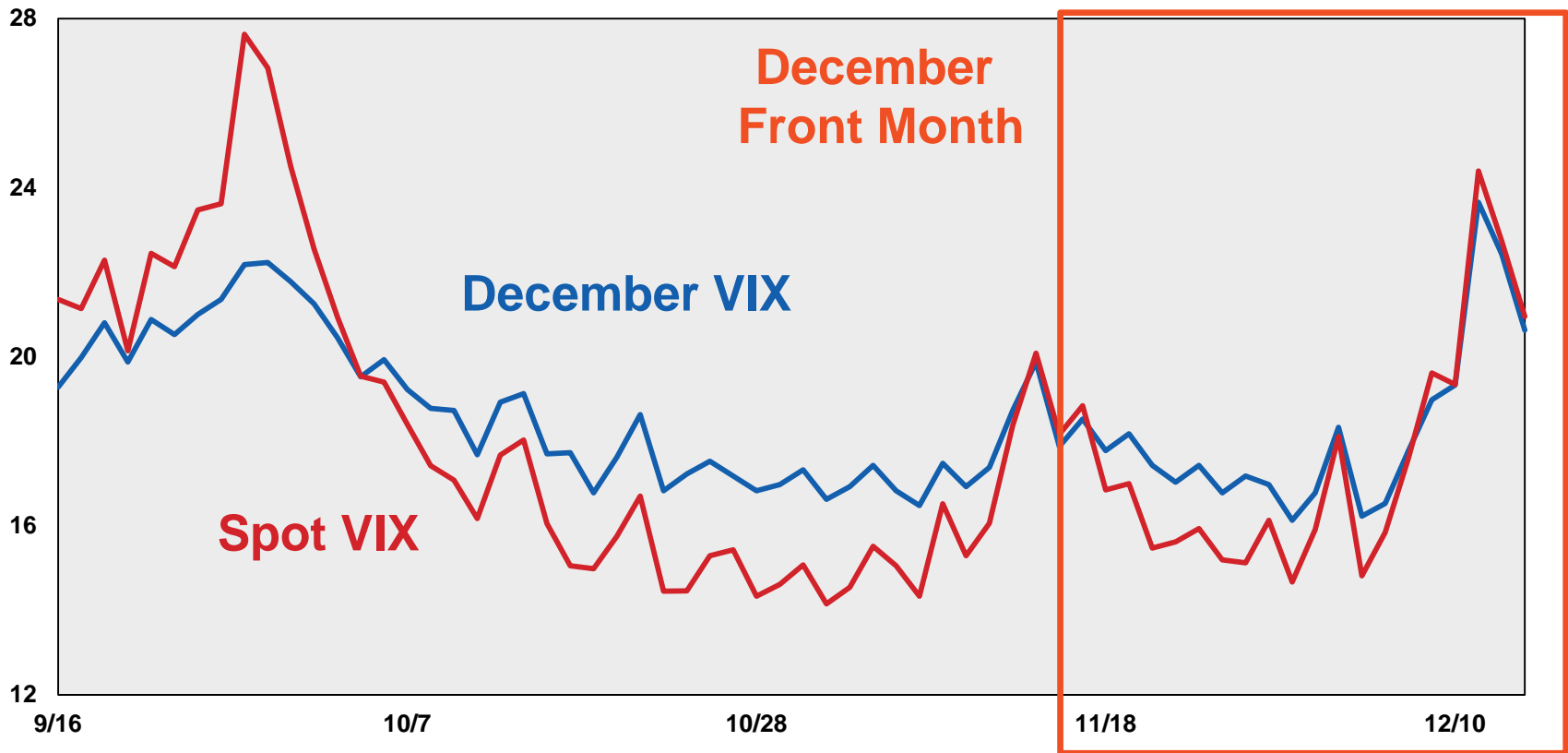
VIX Weeklys

Introduction

- **VIX Weeklys futures were introduced in late July 2015**
- **Short dated VIX options were launched in early October 2015**
- **Historically (before Weeklys) VIX futures were not as responsive to spot VIX price changes when there were several weeks remaining to expiration**
- **VIX futures have historically tracked VIX very closely as expiration approaches – we are consistently seeing this with the new VIX Weeklys**

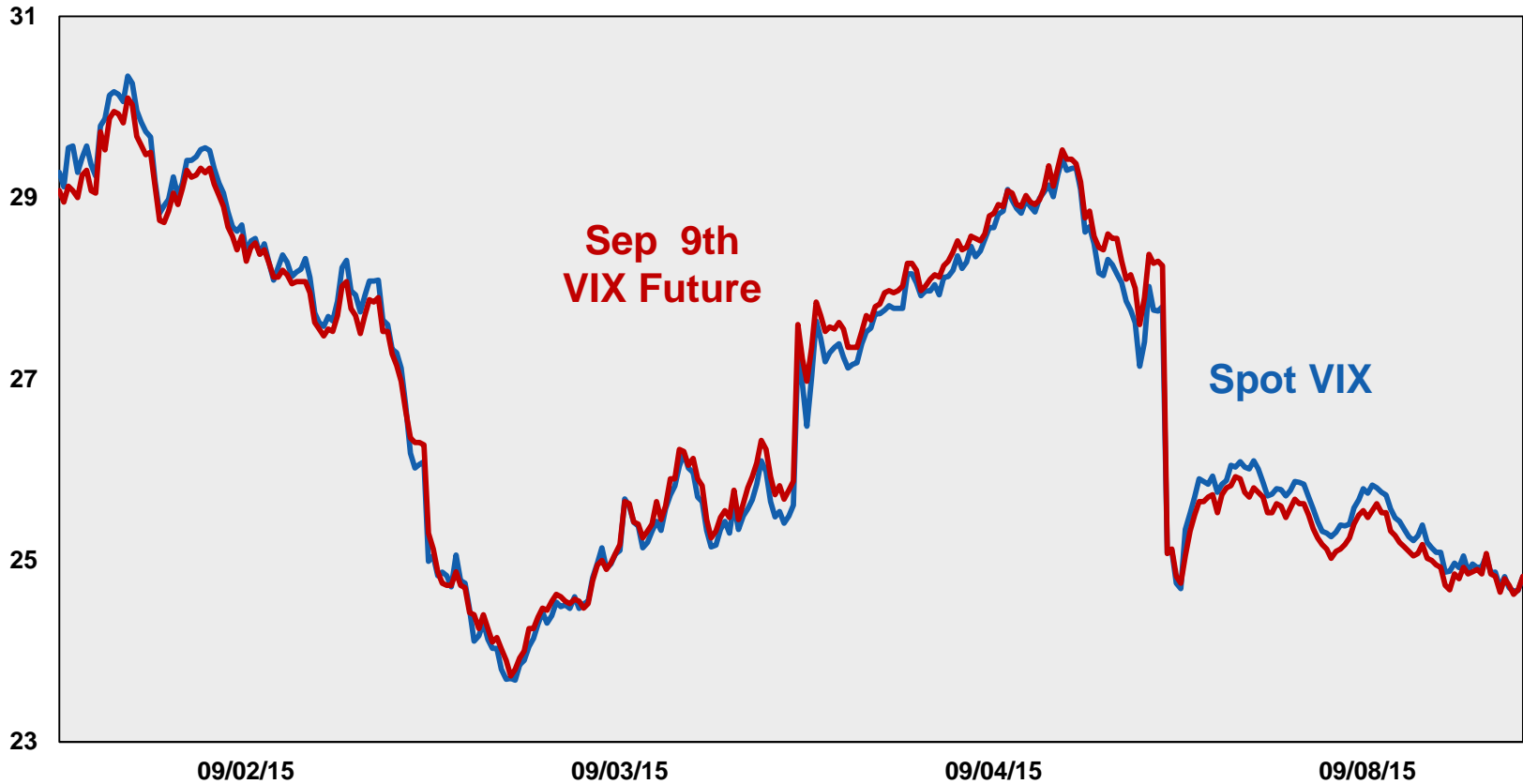
Standard Futures Daily Price Chart

VIX vs. December 2015 VIX Futures



Short Dated Futures Price Chart

5 Minute Prices – VIX vs. Sep 9th VIX Future



Data Sources: CBOE & Bloomberg

VIX Weeklys

Summary

- **It is nearly impossible to replicate the performance of VIX in a portfolio**
- **VIX Options take their forward underlying pricing from the corresponding futures**
- **Near-dated VIX Futures may be the closest a trader or investor can get to spot VIX exposure**

VIX Covered Call

Synthetic Long Plus Short Call

- Friday April 29th – Spot VIX at 15.70 – June VIX Futures at 19.00
- Trader comes in and creates a synthetic long position with VIX options and then sells an out of the money call

Sell VIX Jun 15th 15 Puts at 0.37
Buy VIX Jun 15th 15 Calls at 4.38

Sell VIX Jun 15th 22 Calls at 1.53

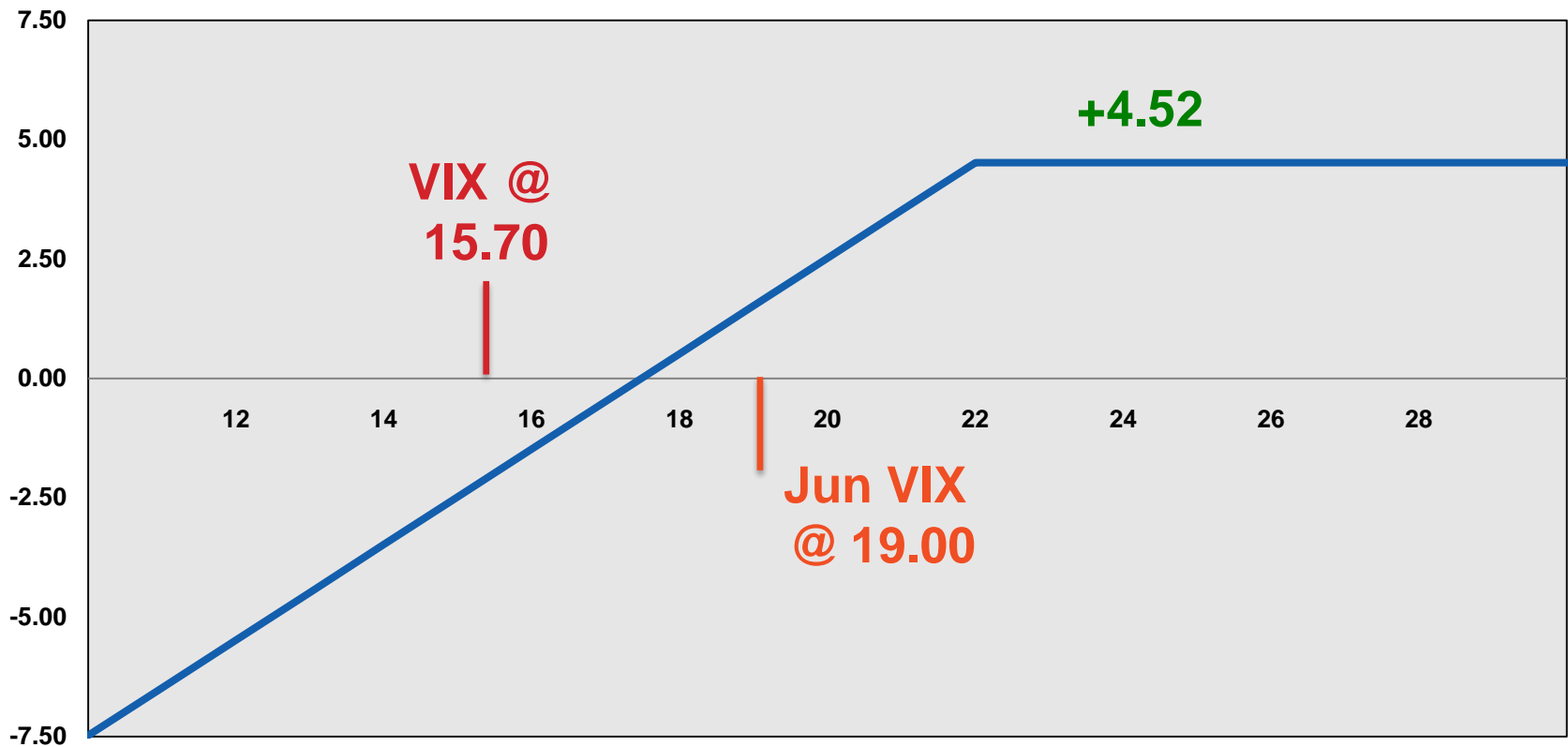
Net Cost = 2.48

**Synthetic
Long at 19.01**

VIX Covered Call

Synthetic Long Plus Short Call

Payoff at Expiration



Directional Spreads

Bearish Spread

- Thursday March 23rd – VIX at 14.74 – May VIX Futures at 19.05
- Two different bear call spreads were executed by different traders at about the same time

Sell 1 VIX May 18th 25 Call at 1.25

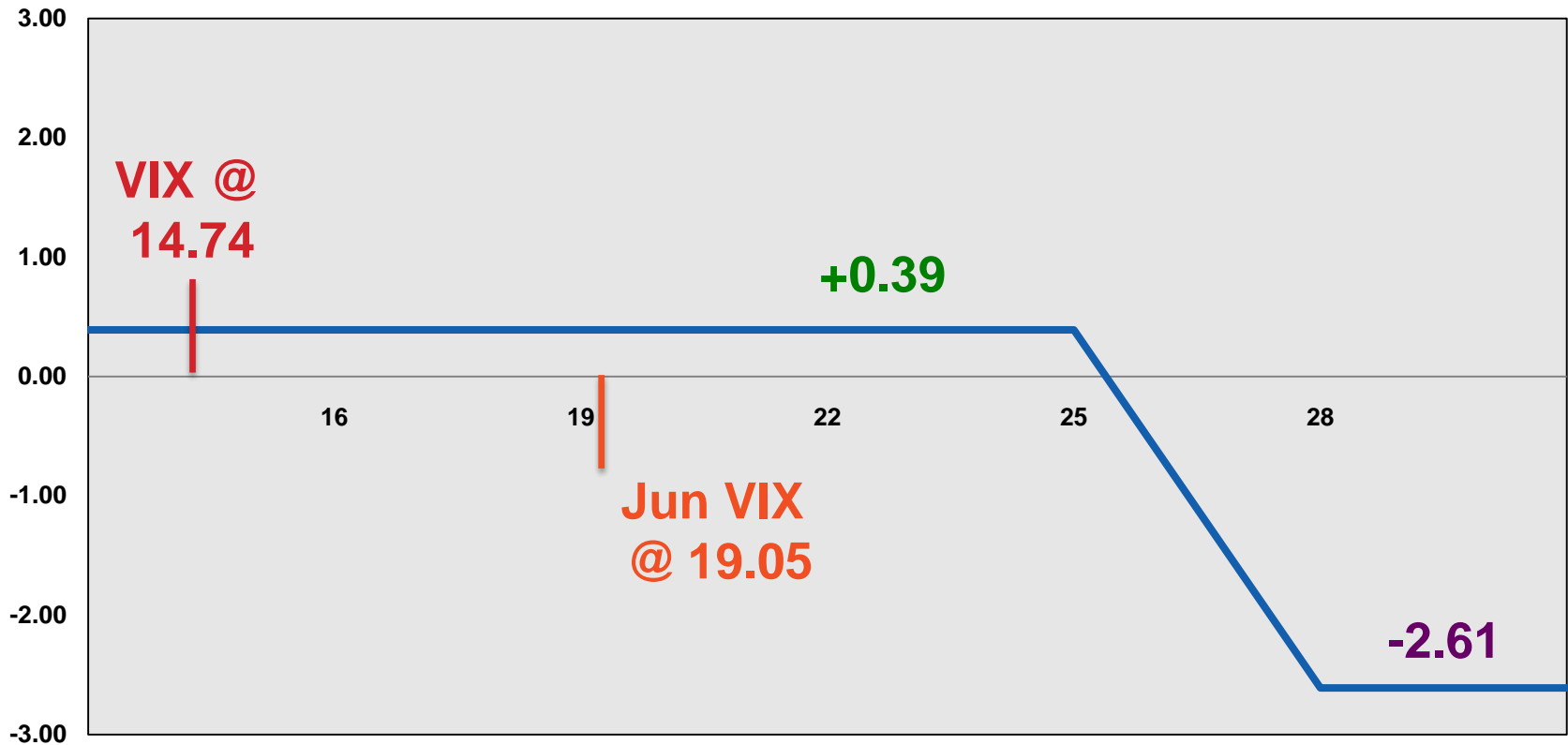
Buy 1 VIX May 18th 28 Call at 0.86

Net Credit = 0.39

Directional Spreads

Bearish Spread

Trade 1 Payoff at Expiration



Directional Spreads

Bearish Spread

- Thursday March 23rd – VIX at 14.74 – May VIX Futures at 19.05
- Two different bear call spreads were executed by different traders at about the same time

Sell 1 VIX May 18th 23 Call at 1.70

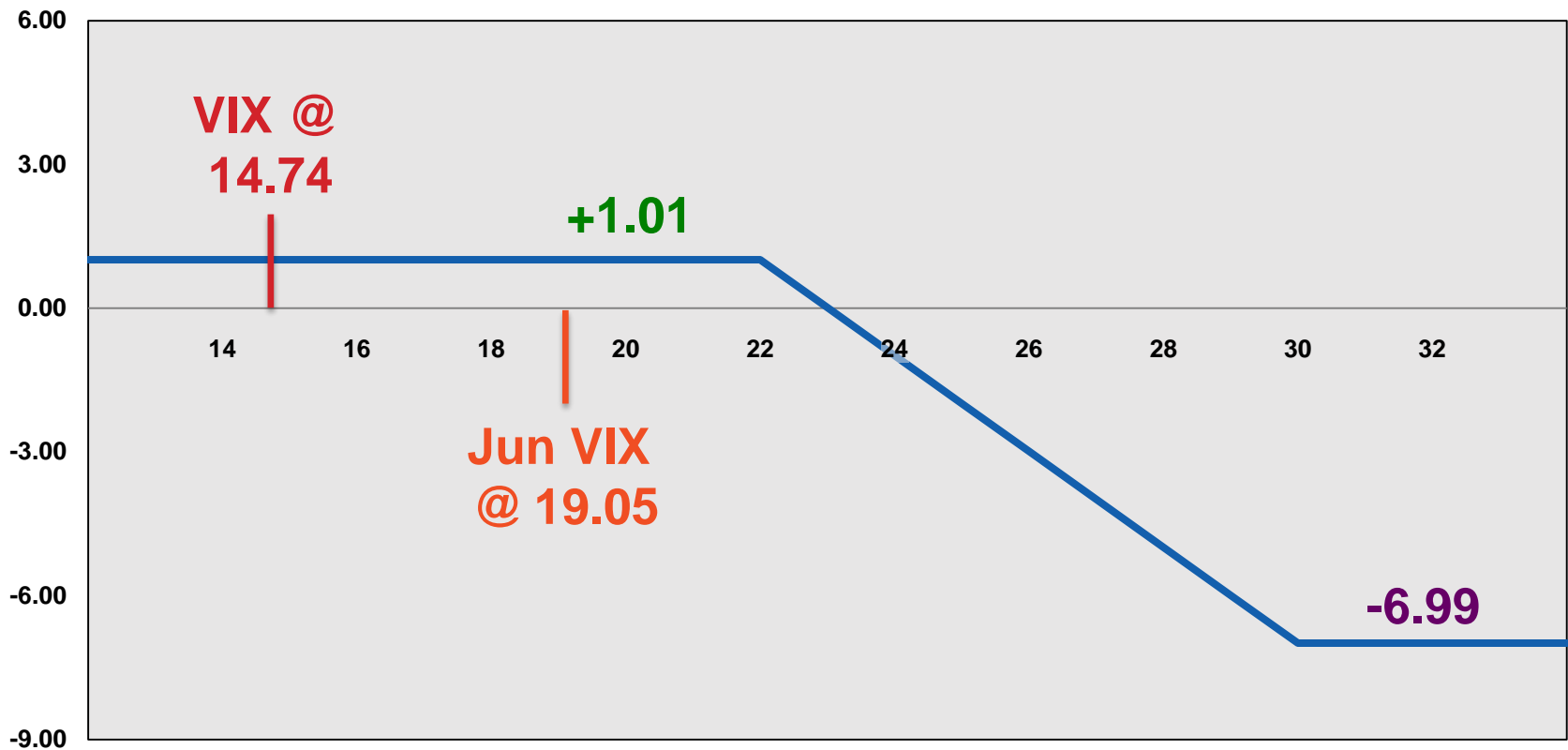
Buy 1 VIX May 18th 30 Call at 0.69

Net Credit = 1.01

Directional Spreads

Bearish Spread

Trade 2 Payoff at Expiration



Ratio Spread

Bullish Spread

- Thursday May 5th – day before April Non-Farm Payrolls Report
- VIX at 15.91 – May VIX Futures at 16.70
- Buyer of 2 lower strike calls for every 3 higher strike calls sold

Buy 2 VIX May 18th 23.00 Calls at 0.29

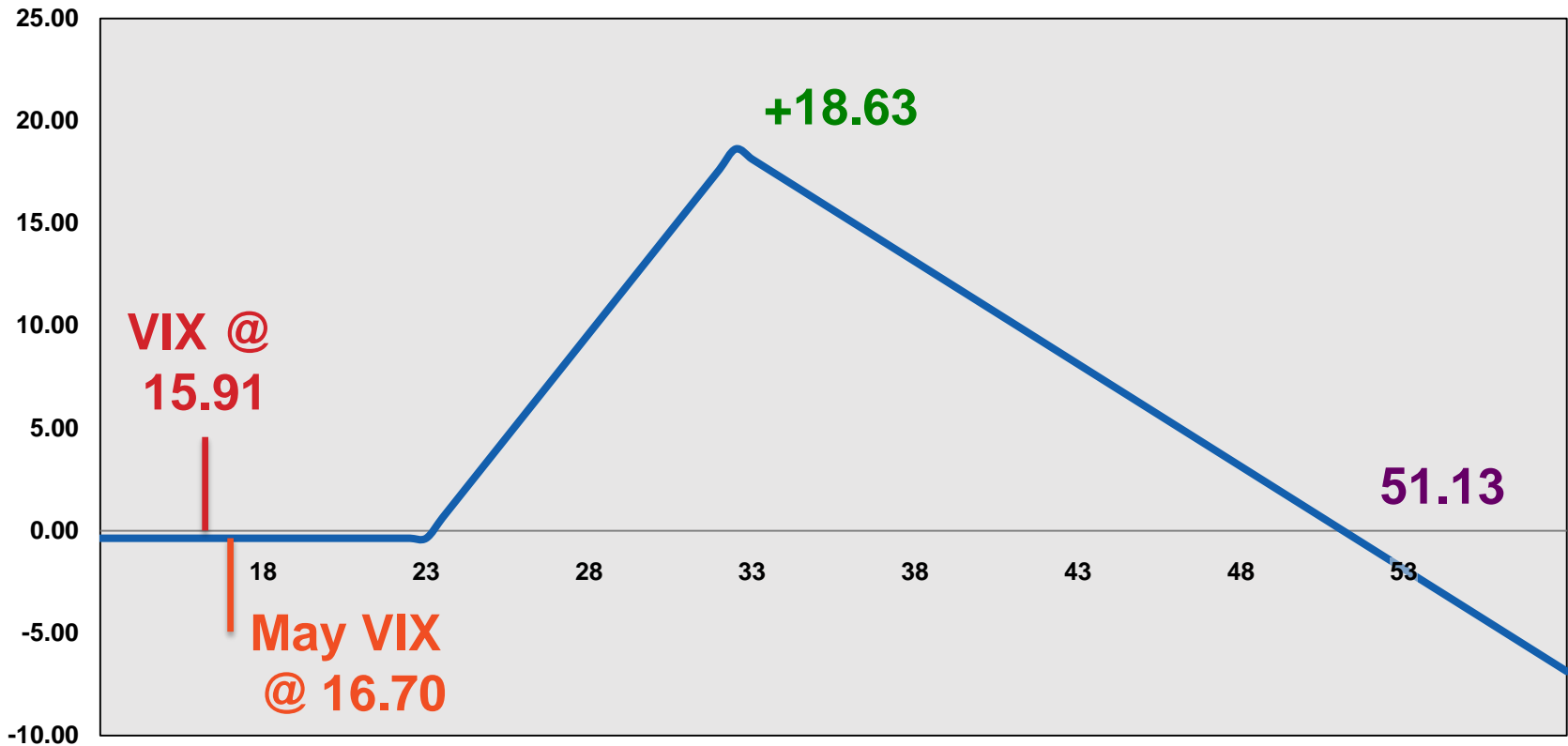
Sell 3 VIX May 18th 32.50 Calls at 0.07

Net Cost = 0.37 per spread

Ratio Spread

Bullish Spread

Payoff at Expiration



Risk Reversal

Bullish Spread

- Friday March 4th – VIX at 16.86 – April VIX futures at 20.05
- Trader came into the VIX pit with a bullish spread that bought one option and sold two

Sell 1 VIX Apr 20th 18 Put at 0.98

Buy 1 VIX Apr 20th 21 Call at 1.88

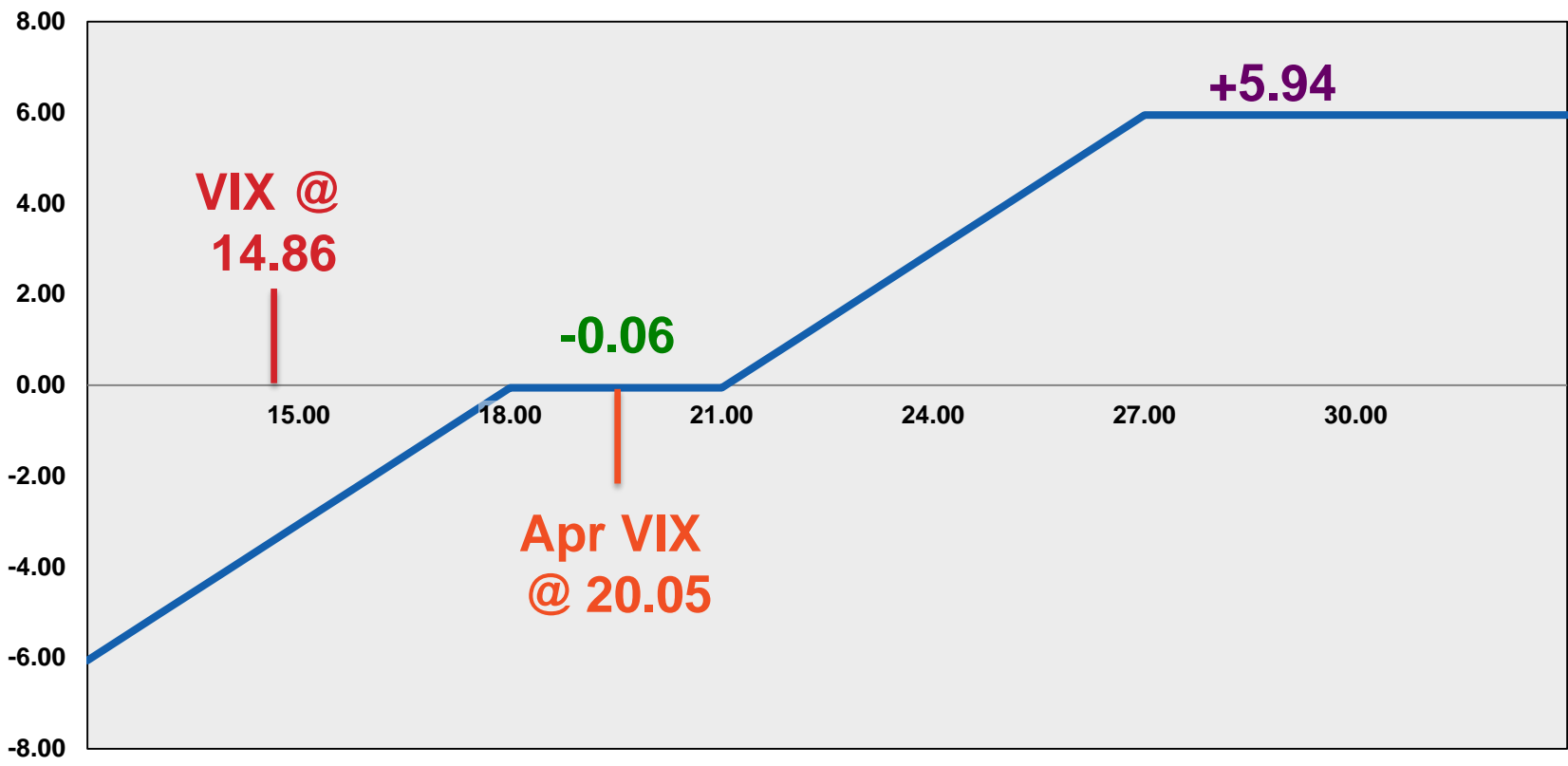
Sell 1 VIX Apr 20th 27 Call at 0.84

Net = 0.06

Risk Reversal

Bullish Spread

Payoff at Expiration



Summary / Q&A

Summary

- **VIX Index options are cash-settled index options similar to SPX option contracts**
- **VIX spreads can be useful for any sort of outlook for market volatility**
- **Always remember to keep the futures versus index pricing in mind when approaching a VIX option trade**

 **Russell Rhoads**
rhoads@cboe.com