

Interactive Brokers Webcast

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# Alternative Volatility Markets

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December 18, 2013  
Presented by Russell Rhoads, CFA



# Alternative Volatility Markets

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# Alternative Volatility Markets

## Outline

- **Equity Market Volatility**
- **Gold Volatility**
- **Emerging Markets**
- **Summary / Q&A / Contact**

# Equity Market Volatility Indexes

## CBOE NASDAQ-100 Volatility Index<sup>SM</sup>

- This index is quoted under the ticker VXN<sup>SM</sup>
- VXN is a measure of the market's expectation of 30-day volatility as determined by price in NASDAQ-100 (NDX) options
- The NASDAQ-100 is a technology heavy index that consistently has had higher implied volatility than the CBOE Volatility Index<sup>®</sup> (VIX<sup>®</sup>)

# Equity Market Volatility Indexes

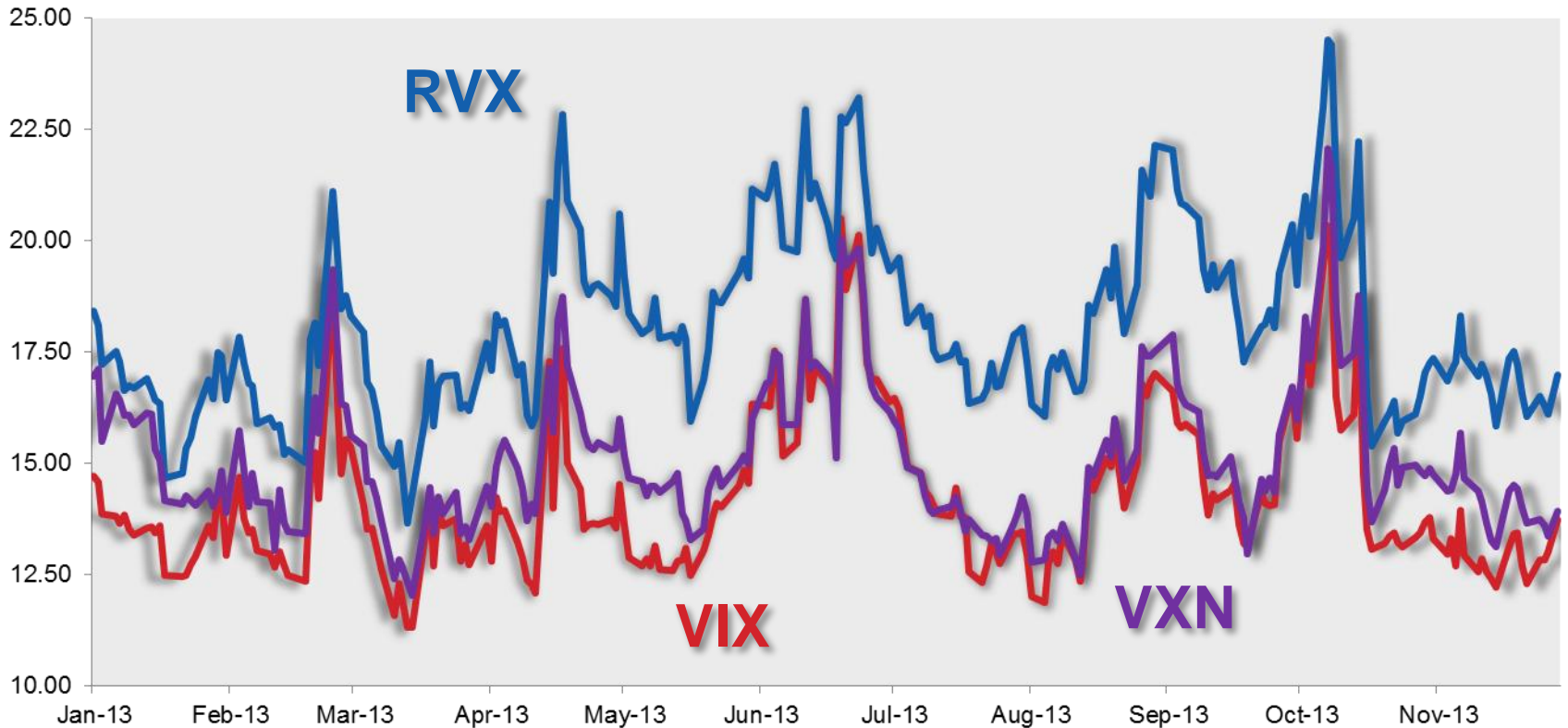
## CBOE Russell 2000<sup>®</sup> Volatility Index<sup>SM</sup>

- The CBOE Russell 2000 Volatility Index is quoted under the ticker RVX<sup>SM</sup>
- The Russell 2000 (RUT) index is comprised of the bottom 2000 of the 3000 largest companies in the US
- It is considered a benchmark for small and mid cap stocks
- It may also be considered a better proxy for domestic business activity than the S&P 500<sup>®</sup>
- 84% of the revenues generated by Russell 2000 companies in 2012 was from domestic operations
- A majority of business activity for S&P 500 companies is often from international operations

# Equity Market Volatility Indexes

## Price Comparisons

**RVX vs. VIX – Jan 2013 – Nov 2013**

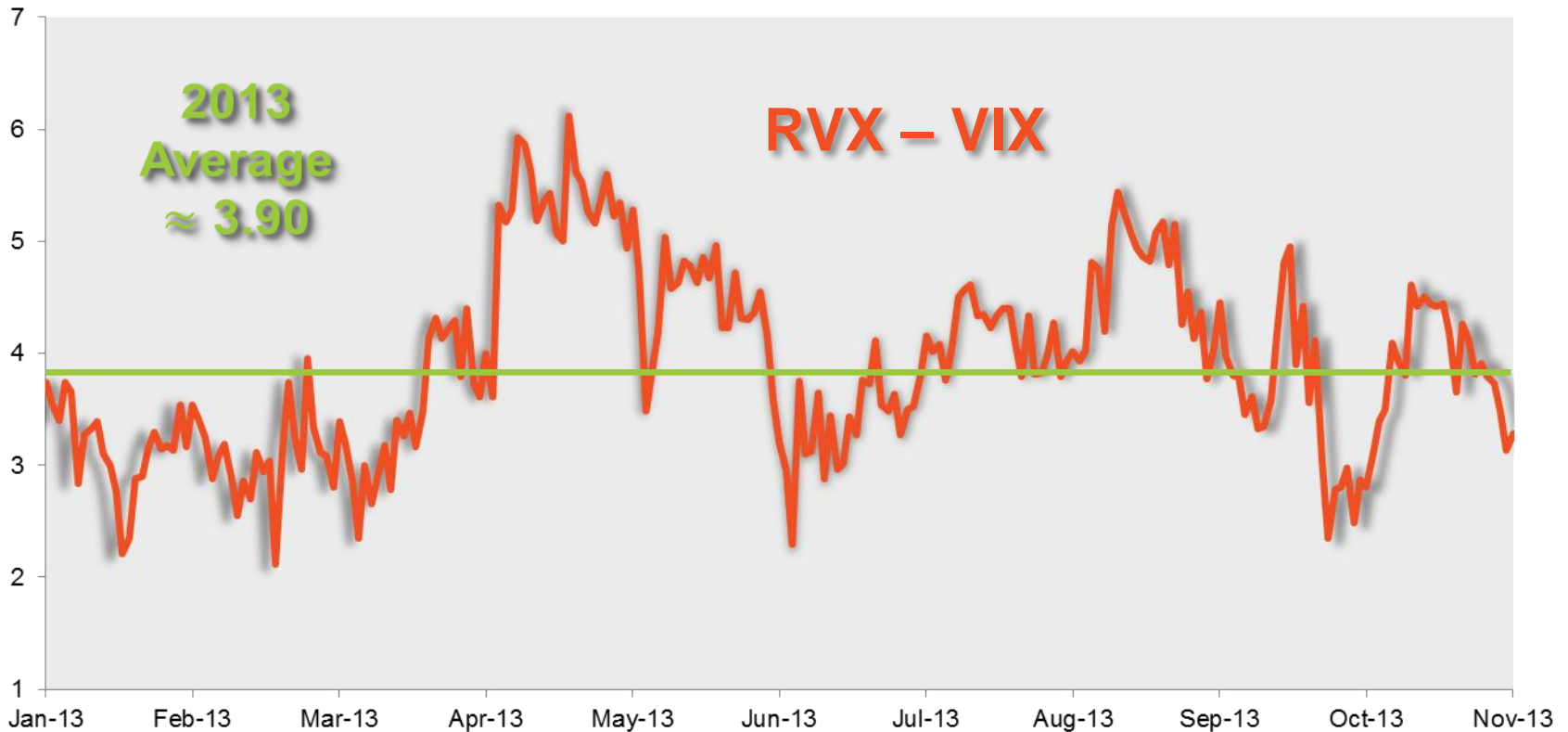


Source: CBOE.com

# Equity Market Volatility Indexes

## Spreads

**RVX – VIX – Jan 2013 – Nov 2013**

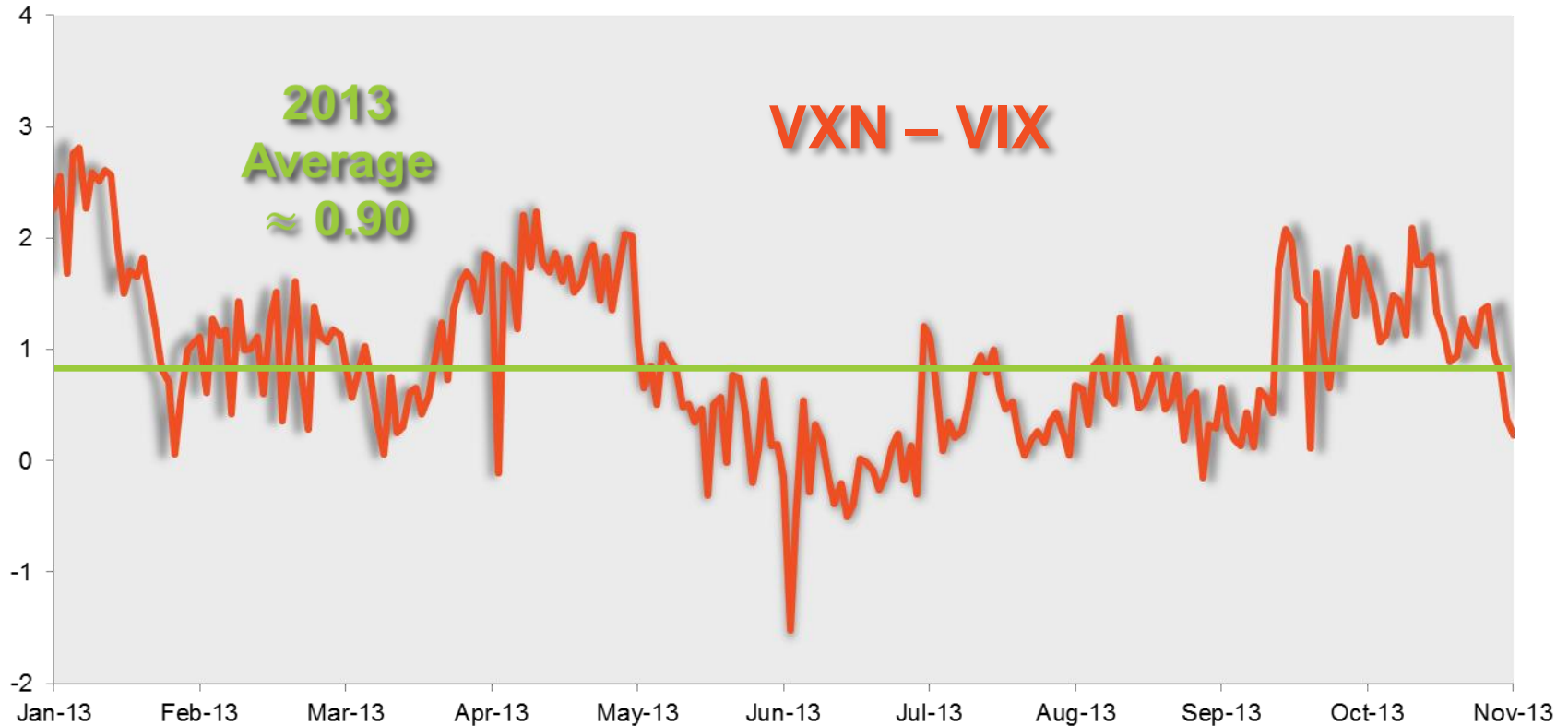


Source: CBOE.com

# Equity Market Volatility Indexes

## Spreads

### VXN – VIX – Jan 2013 – Nov 2013



Source: CBOE.com



# Equity Market Volatility Indexes

## Spread Summary

### RVX vs. VIX – 2007 – 2013\* Statistics by Year

Year	VIX High	VIX Low	VIX Average		RVX High	RVX Low	RVX Average
2007	31.09	9.89	17.54		37.14	14.44	23.47
2008	80.86	16.30	32.69		87.62	21.24	37.84
2009	56.65	19.47	31.48		62.84	24.60	38.68
2010	45.79	15.45	22.55		53.88	19.95	29.26
2011	48.00	14.62	24.20		57.66	18.97	31.28
2012	26.66	13.45	17.80		33.45	17.02	23.10
2013*	20.49	11.30	14.23		24.52	13.65	18.14

Source: CBOE.com

# Equity Market Volatility Indexes

## Spread Summary

### VXN vs. VIX – 2007 – 2013\* Statistics by Year

Year	VIX High	VIX Low	VIX Average		VXN High	VXN Low	VXN Average
2007	31.09	9.89	17.54		34.94	14.83	20.72
2008	80.86	16.30	32.69		80.64	20.00	35.51
2009	56.65	19.47	31.48		54.45	19.47	31.79
2010	45.79	15.45	22.55		46.63	15.97	23.45
2011	48.00	14.62	24.20		46.61	15.85	25.02
2012	26.66	13.45	17.80		28.63	13.79	19.30
2013*	20.49	11.30	14.23		22.07	12.03	15.14

Source: CBOE.com

# Equity Volatility Market Indexes

## Spread Summary

### RVX vs. VIX – 2007 – 2013\* Statistics by Year

Year	Max Spread	Min Spread	Average	Correlation
2007	8.52	2.39	5.94	0.9253
2008	11.13	0.74	5.15	0.9379
2009	12.84	3.04	7.21	0.9225
2010	10.99	2.24	6.71	0.9135
2011	12.60	2.93	7.08	0.9529
2012	8.80	1.75	5.30	0.9075
2013*	6.12	2.12	3.91	0.9160

Source: CBOE.com

# Equity Volatility Market Indexes

## Spread Summary

### VXN vs. VIX – 2007 – 2013\* Statistics by Year

Year	Max Spread	Min Spread	Average	Correlation
2007	7.02	-2.95	3.19	0.9262
2008	7.64	-3.72	2.82	0.9307
2009	2.44	-2.67	0.31	0.9371
2010	2.71	-1.55	0.90	0.9270
2011	3.21	-3.26	0.82	0.9565
2012	3.34	-0.24	1.50	0.8980
2013*	2.81	-1.52	0.90	0.8794

Source: CBOE.com

# Equity Market Volatility Indexes

## Summary

- **The three domestic equity market related volatility indexes have been highly correlated in the past**
- **The S&P 500, NASDAQ-100, and Russell 2000 have different components and are influenced by different market factors**
- **Despite being correlated the spread between VXN and RVX and VIX has varied over time**

# Gold Volatility

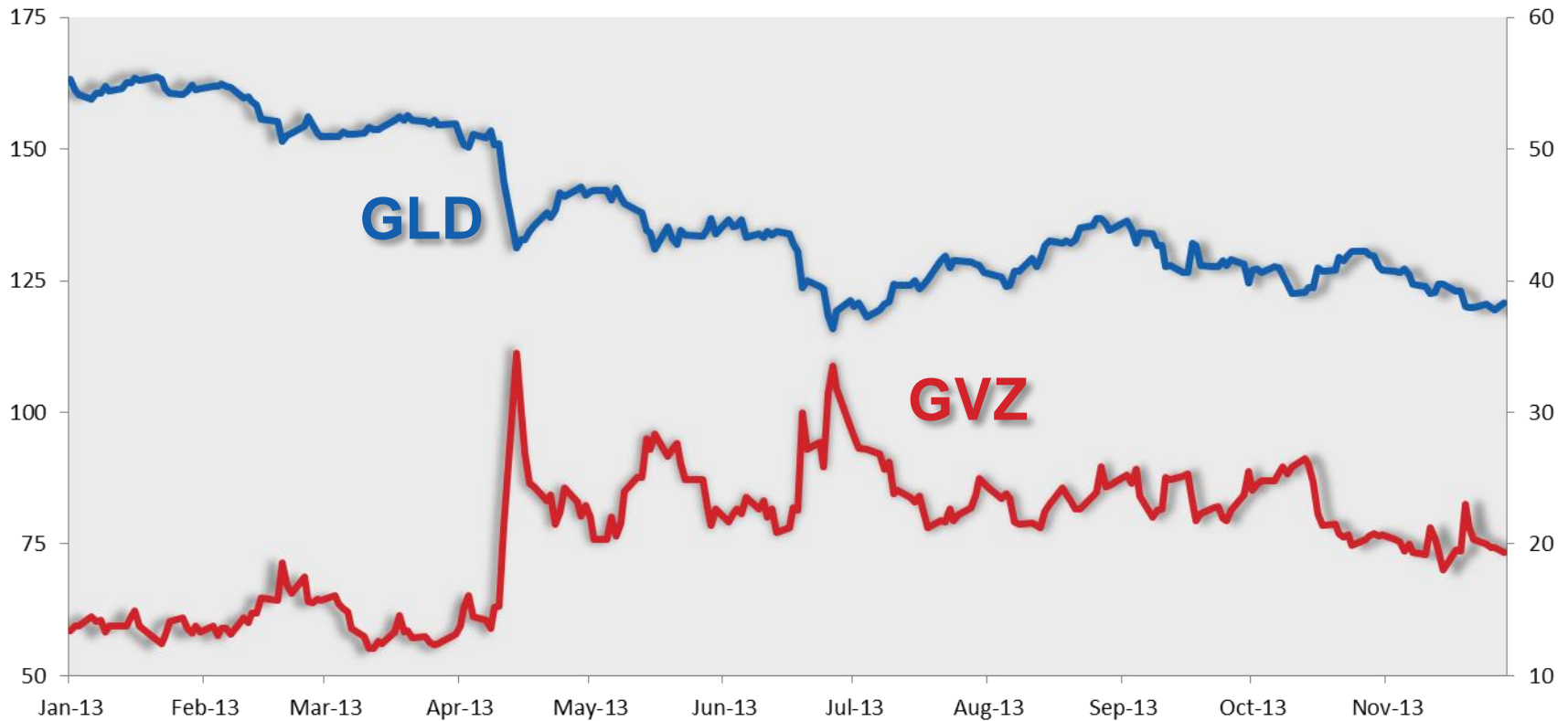
## CBOE Gold ETF Volatility Index

- Measures the market's expectation of 30-day volatility of gold prices
- The VIX methodology is applied to options on the SPDR Gold Shares ETF (GLD)
- The index is quoted with the symbol  $\text{GVZ}^{\text{SM}}$  and there are both options and futures trading on the index

# Gold Volatility

## Relationship to Market

### GLD vs. GVZ – Jan 2013 – Nov 2013



Sources: Bloomberg and CBOE.com

# Gold Volatility

## Relationship to Market

### GLD vs. GVZ – 2008\* – 2013\* Statistics by Year

Year	GLD High	GLD Low	Range		GVZ High	GVZ Low	GVZ Average
2008*	96.17	70.00	37.39%		64.53	22.69	38.79
2009	119.18	79.79	49.37%		43.09	17.46	27.29
2010	139.11	104.04	33.71%		30.73	16.23	20.91
2011	184.59	127.93	44.30%		39.95	14.72	22.27
2012	173.61	149.46	16.16%		25.36	11.97	18.14
2013*	163.67	115.94	41.17%		34.48	12.07	20.68

Sources: Bloomberg and CBOE.com



# Gold Volatility

## Relationship to Market

### GLD vs. GVZ – Correlation by Year – 2008\* – 2013\*

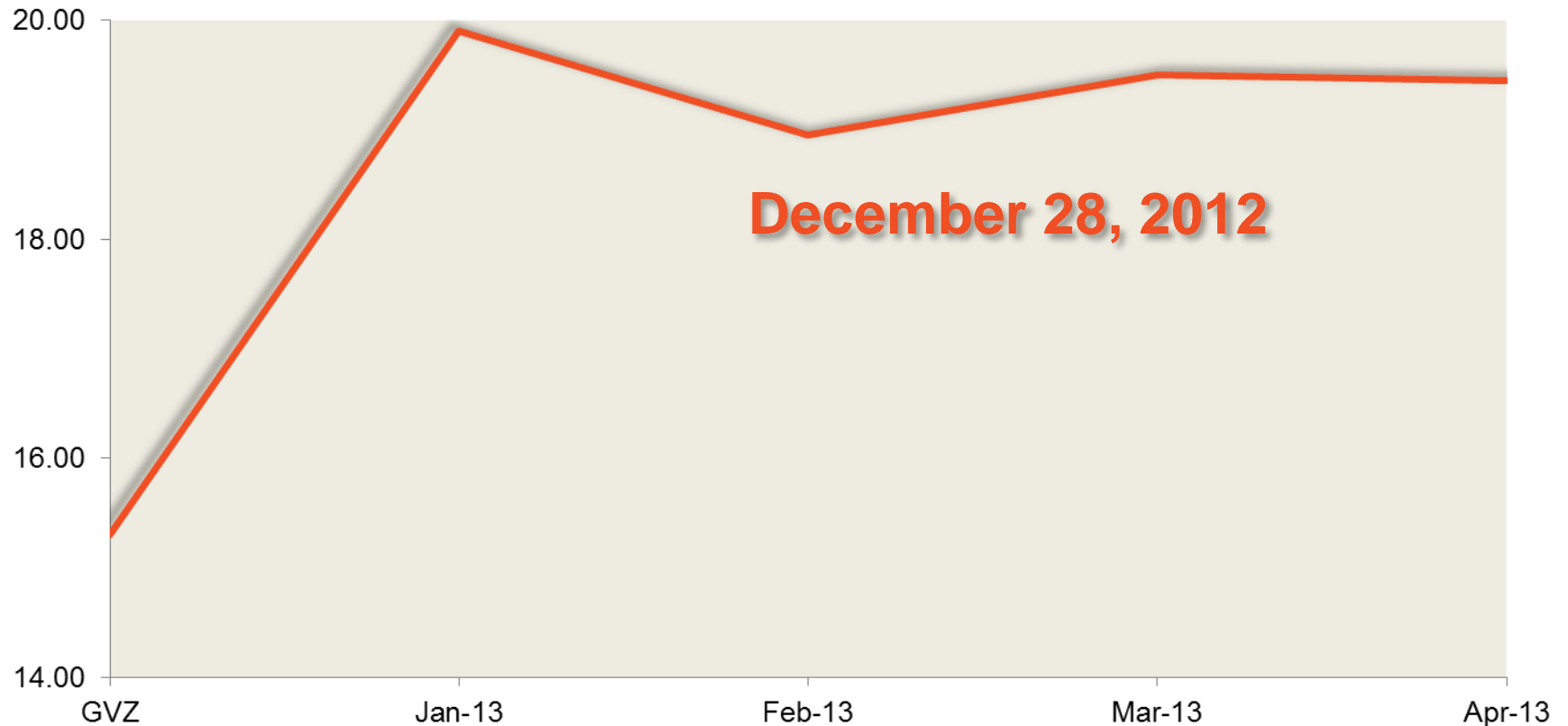
Year	Correlation	GLD Perf
2008*	0.0213	-0.42%
2009	0.3092	21.53%
2010	-0.1023	25.67%
2011	-0.1451	9.14%
2012	-0.1289	6.39%
2013*	-0.7275	-29.44%

Sources: Bloomberg and CBOE.com

# Gold Volatility

## Futures Markets

### GVZ Curve Examples –

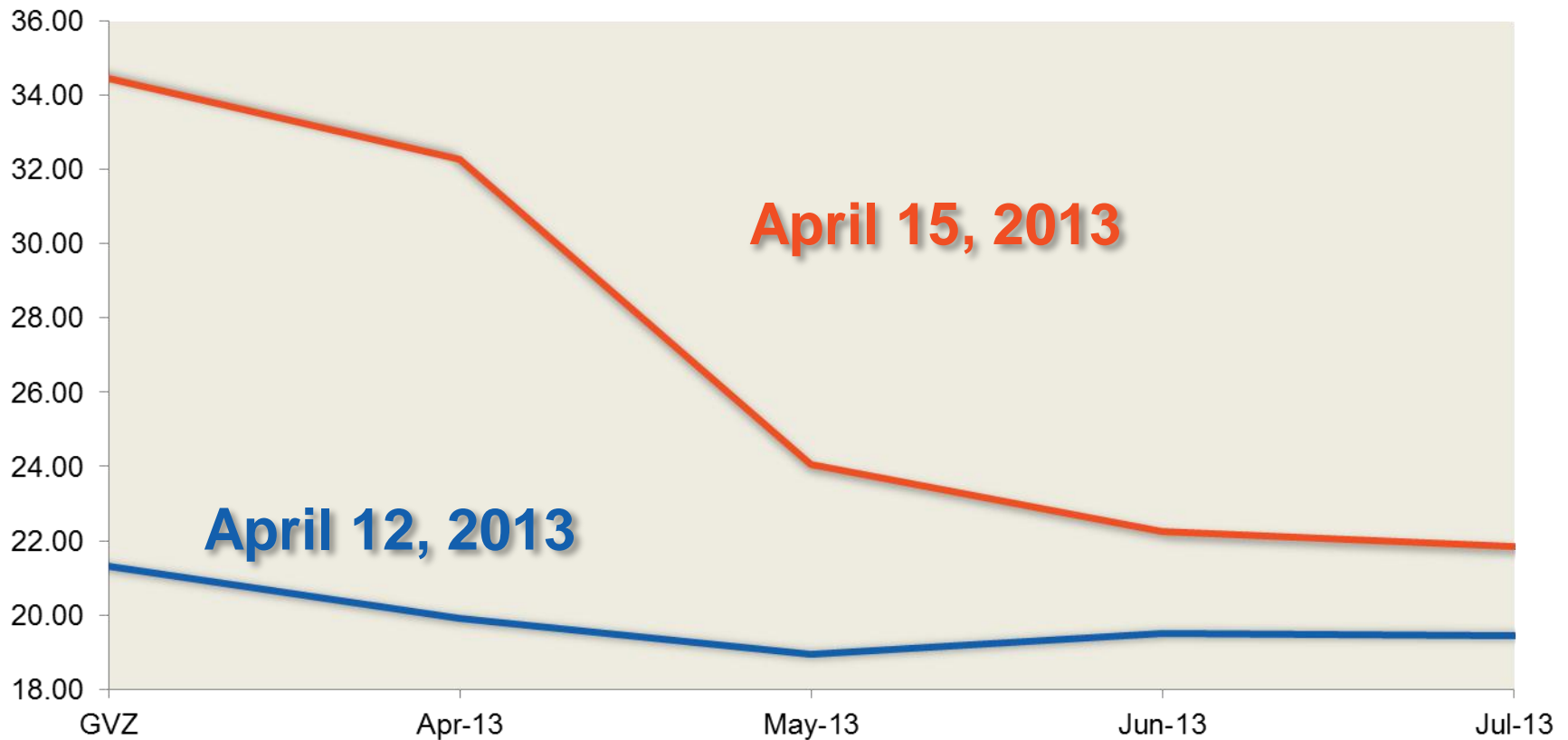


Source: *cfe.cboe.com*

# Gold Volatility

## Futures Markets

### GVZ Curve Examples –

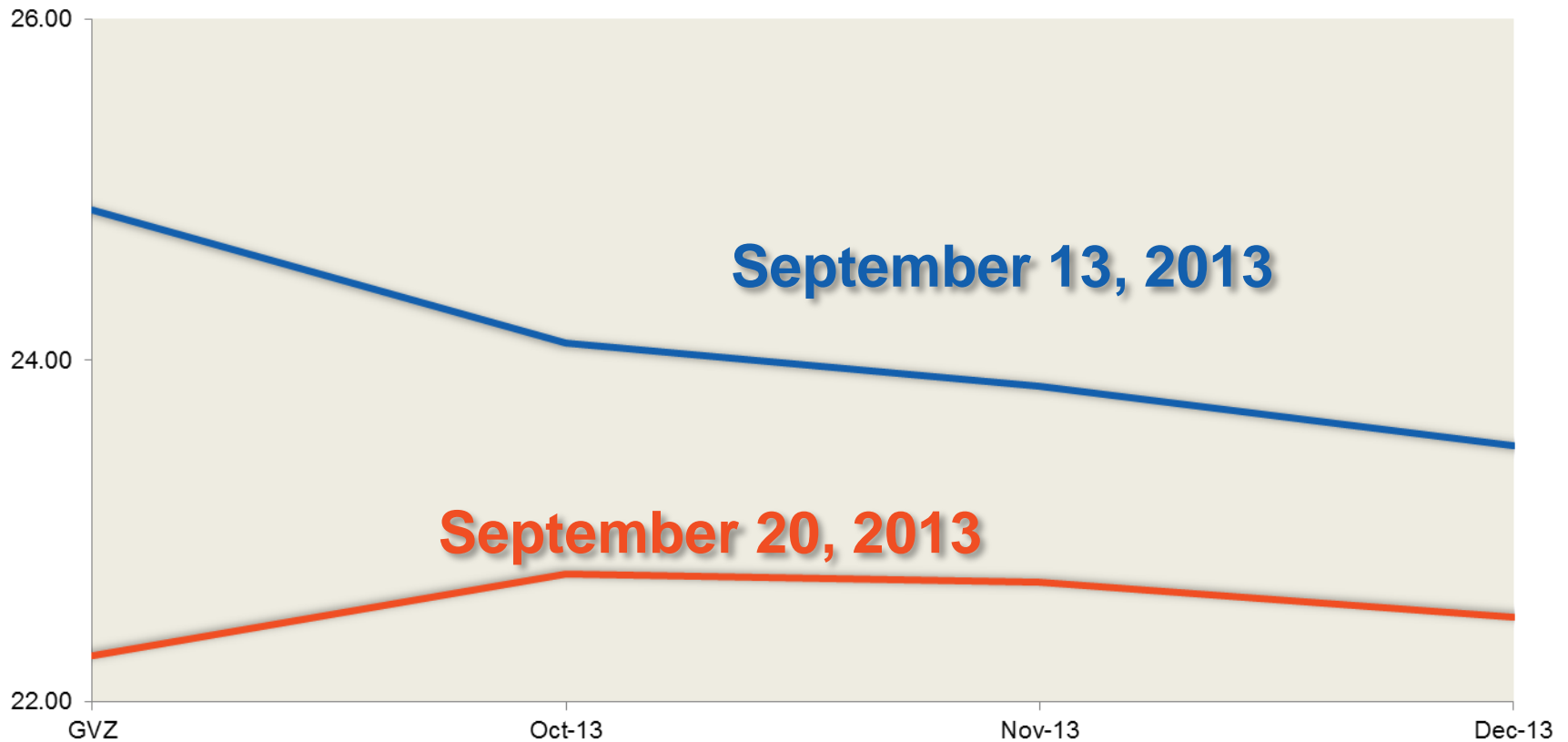


Source: *cfe.cboe.com*

# Gold Volatility

## Futures Markets

### GVZ Curve Examples –



Source: *cfe.cboe.com*

# Emerging Market Volatility

## CBOE Indexes

- CFE and CBOE trade futures and options on two emerging market related volatility indexes
- The CBOE Emerging Markets ETF Volatility Index (VXEEM<sup>SM</sup>) is based on the volatility of option trading on the iShares MSCI Emerging Markets Index ETF (EEM)
- The CBOE Brazil ETF Volatility Index (VXEZW<sup>SM</sup>) is based on the volatility of options trading on the iShares MSCI Brazil Capped ETF (EWZ)
- This past year has seen some interesting activity in both indexes relative to the underlying markets

# Emerging Market Volatility

## VXEEM – Relationships

### VXEEM vs. EEM – 2011\* – 2013\*

Year	EEM High	EEM Low	Range		VXEEM High	VXEEM Low	VXEEM Average
2011*	50.18	34.35	46.10%		64.10	20.59	34.77
2012	44.74	36.68	21.97%		37.42	20.03	25.95
2013*	45.23	36.65	23.40%		38.00	15.00	21.82

Source: Bloomberg and CBOE.com

# Emerging Market Volatility

## VXEEM – Correlations

### VXEEM vs. EEM – 2011\* – 2013\*

Year	Correlation	EEM Performance
*2011	-0.8183	-16.17%
2012	-0.7518	15.64%
*2013	-0.7202	-4.61%

Source: Bloomberg and CBOE.com

# Emerging Market Volatility

## VXEWZ – Relationships

### VXEWZ vs. EWZ – 2011\* – 2013\*

Year	EWZ High	EWZ Low	Range		VXEWZ High	VXEWZ Low	VXEWZ Average
2011*	79.59	50.77	56.77%		63.49	22.25	35.48
2012	70.26	48.96	43.51%		44.53	21.51	28.69
2013*	57.65	41.26	39.72%		40.35	16.67	24.64

Source: Bloomberg and CBOE.com



# Emerging Market Volatility

## VXEWZ – Correlations

### VXEWZ vs. EWZ – 2011\* – 2013\*

Year	Correlation	EWZ Performance
*2011	-0.8499	-22.36%
2012	-0.7252	-2.32%
*2013	-0.6916	-17.52%

Sources: Bloomberg and CBOE.com

# Emerging Market Volatility

## VXEEM vs. VXEWZ

### VXEEM vs. VXEWZ – Correlations – 2011\* – 2013\*

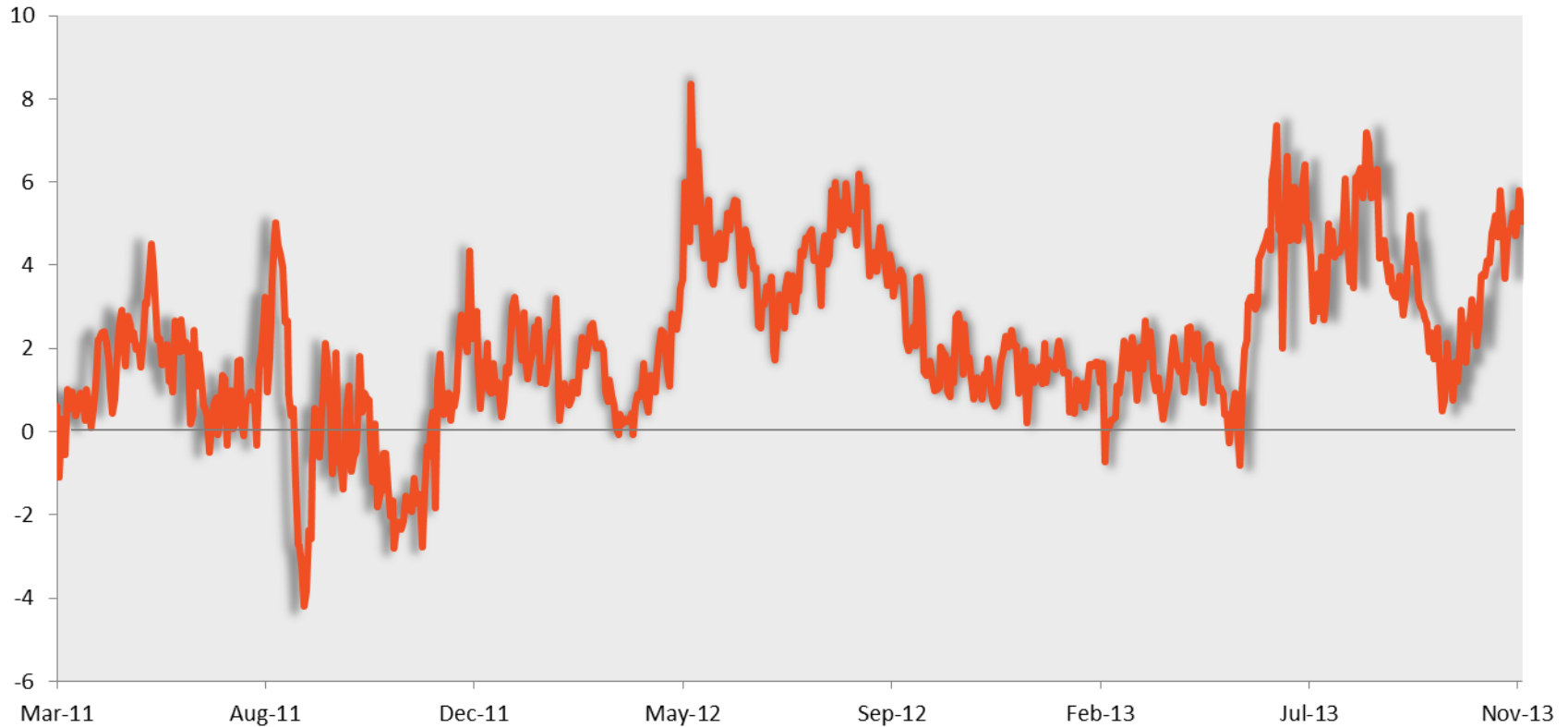
Year	Correlation	EEM Performance	EWZ Performance
*2011	0.9325	-16.17%	-22.36%
2012	0.8351	15.64%	-2.32%
*2013	0.8322	-4.61%	-17.52%

Sources: Bloomberg and CBOE.com

# Emerging Market Volatility

## Spread Performance

**VXEWZ minus VXEEM – 2011\* – 2013\***



Source: CBOE.com

# Alternative Volatility Markets

## Summary

- In addition to VIX, traders may look to VXN or RVX to gain exposure to US market volatility
- The relationship between GVZ and GLD has varied depending on the environment
- Both VXEEM and VXEWS offer opportunities to gain exposure to emerging equity market volatility

# Alternative Volatility Markets

## Resources / Contact

[www.cboe.com/volatility](http://www.cboe.com/volatility)  
[www.cboeoptionshub.com](http://www.cboeoptionshub.com)

[rhoads@cboe.com](mailto:rhoads@cboe.com)