SUMMER IN THE CITY

3RD ANNUAL CSR INVESTING SUMMIT

Identifying Performance Attribution in ESG Data Summer in the City, Reuters CSR 2015

Presentation based on:
1) The Benefits of Socially Responsible Investing: An Active Manager's Perspective
   De & Clayman (2014), Journal of Investing, Forthcoming Winter 2015 issue

2) Are All Components of ESG Scores Equally Important?
   De & Clayman (2010), NYSSA 'The Finance Professionals' Post'

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Main Results (Paper 1)

- Higher return companies, in aggregate, had better ESG ratings

- **Strong predictive power of ESG ratings on stock risk** (Negative correlation between ESG ratings & stock volatility)

- **Predictive power of ESG on stock risk stronger when market volatility higher**

- Positive correlation between ESG & risk-adjusted return

- **High ESG stocks tend to have low volatility, low ESG stocks tend to have high volatility. The ESG effect independent of the low volatility anomaly and a positive contributor to stock returns in its own right**

- **Restricting the investible universe through deletion of worst ESG stocks imposed no cost, tended to improve the probability distribution of portfolio returns**. Probability Opportunity Distributions (POD): Random portfolios from [restricted universe excluding worst ESG stocks] tend to be better than those from [complete universe], higher average, median, maximum return (risk-adjusted return)
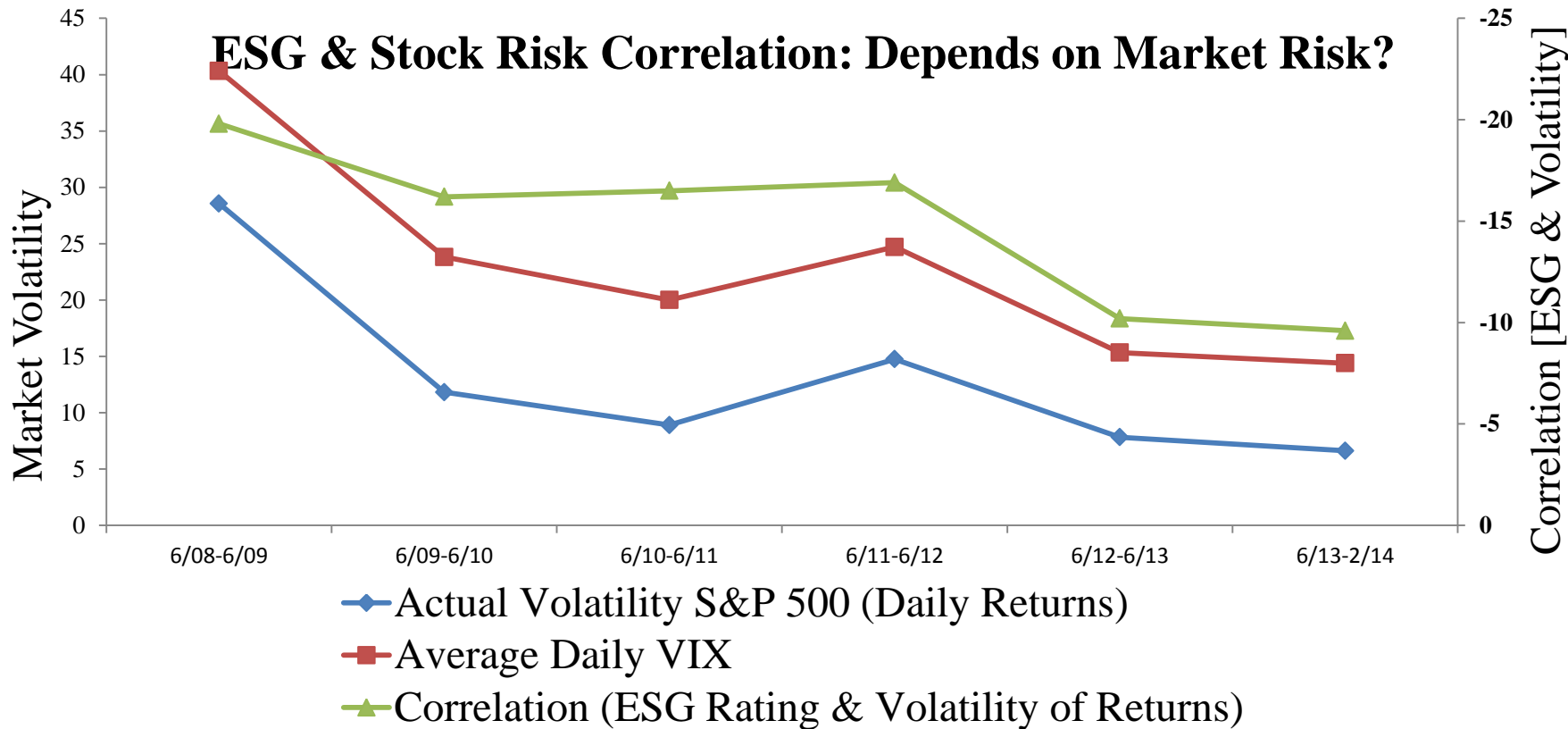- **Low ESG = Tail Risk**

Correlation between ESG Ratings & Stock Risk: Varies Based on Market Risk?

ESG Data Year	Returns & Market VIX Period	Entire Distribution	VIX	Actual Market Volatility
2007	Mid 2008 – Mid 2009	-19.8% ***	40.3	2.86
2008	Mid 2009 – Mid 2010	-16.2% ***	23.8	1.18
2009	Mid 2010 – Mid 2011	-16.5% ***	20.0	0.89
2010	Mid 2011 – Mid 2012	-16.9% ***	24.7	1.48
2011	Mid 2012 – Mid 2013	-10.2% ***	15.3	0.78
2012	Mid 2013 – Q1/ 2014	-9.3% ***	14.4	0.66

The actual market volatility = standard deviation of the daily returns of S&P 500

Strong negative correlation between ESG ratings & stock volatility

Negative correlation strengthens in more volatile markets

ESG & Stock Risk Correlation: Depends on Market Risk?

Legend:
- ◆ Actual Volatility S&P 500 (Daily Returns)
- ■ Average Daily VIX
- ▲ Correlation (ESG Rating & Volatility of Returns)

Two Way Classification of ESG & Volatility

	Vol_H	Vol_L	Total
ESG_H	**23%**	**27%**	50%
ESG_L	**27%**	**23%**	50%
Total	49%	51%	100%

High ESG stocks have low volatility
Low ESG stocks have high volatility

ESG & Volatility Independent Effects?

Two-Way Anova Test, Duncan Values at 95% CI. Stock Returns in bold for the two important groups

Groups with mean returns statistically different will have different letters

ESG File/ Return Yr	ESG_H Vol_H		ESG_H Vol_L		ESG_L Vol_H		ESG_L Vol_L		Stronger Effect
2007/ 08-09	**-38.2**	**B**	-17.0	A	-40.2	B	**-17.5**	**A**	**Volatility**
2008/ 09-10	**35.5**	**B**	18.5	C	45.1	A	**20.5**	**C**	**ESG**
2009/ 10-11	**42.8**	**A**	32.0	B	40.8	A	**32.9**	**B**	**ESG**
2010/ 11-12	**-14.3**	**B**	8.1	A	-13.9	B	**7.4**	**A**	**Volatility**
2011/ 12-13	**34.1**	**A**	24.5	B	28.6	A, B	**23.8**	**B**	**ESG**
2012/ 13-14	**27.2**	**A**	19.2	B, C	22.3	B	**16.3**	**C**	**ESG**
Annualized (5.75 yrs)	**10.2**		13.6		9.2		**13.3**		**Volatility**

▸ **ESG was a positive contributor to stock returns in its own right, independent of the well-known low volatility anomaly**

Portfolios from [ESG restricted universe] tend to have higher mean (83% of time), median (67% of time) , maximum return (67% of time)

Restriction =10th percentile ESG rating

Year: Data/ Return	Distribution	Mean	Median	Maximum
2007/ 08-09	Complete	-27.8	-27.9	-17.2
	Restricted	-27.6	-27.6	-19.3
2008/ 09-10	Complete	30.3	28.7	51.3
	Restricted	30.7	29.7	64.5
2009/ 10-11	Complete	36.85	37.0	49.7
	Restricted	36.93	36.8	51.2
2010/ 11-12	Complete	-2.9	-2.8	7.1
	Restricted	-2.5	-2.7	7.7
2011/ 12-13	Complete	27.6	26.7	50.0
	Restricted	27.2	26.9	46.4
2012/ 13-14	Complete	21.4	21.6	30.0
	Restricted	21.7	21.4	32.0

Similar results with restriction at 5th percentile ESG rating

Similar results with risk-adjusted return

Main Results (Paper 2)

- ESG scores have a positive effect on stock returns & ROE

- The predictive ability is much stronger for ROE

- The different pillars ('E','S','G) have very different information content

- Corporate Governance (G): Best predictor of stock return, effect pronounced over medium to long run (3-5 years)

- Social (S): Best predictor of ROE, effect over short, medium, long-term (1,3,5 years)

Y	# of Rolling time period	α (Environment)	β (Social)	μ (Governance)	δ (Sin)
1 year return	12	9, 1	5, 2	5, 1	6, 1
3 year return	11	6, 2	4, 1	**7, 4**	5, 0
5 year return	8	6, 3	2, 1	**6, 4**	3, 0
1 year ROE	12	3, 0	**12, 10**	2, 0	2, 1
3 year ROE	11	4, 0	**11, 8**	2, 0	2, 2
5 year ROE	8	3, 0	**8, 6**	3, 0	2, 0

$$Y = \text{Intercept} + \alpha\, \text{Environment} + \beta\, \text{Social} + \mu\, \text{Governance} + \delta\, \text{Sin} + \varepsilon$$

How many years $\alpha, \beta, \mu, \delta$ positive & statistical ly significant