

Internet Appendix A198: Environmental Finance
Illustrative Pitch Template Example

Pitcher's Name	Ashley Ding	FoR Category	Environmental Finance	Date Completed	08/06/2017
(A) Working Title	Volatility Behavior of Fossil Fuels and Clean Energy around the UN COP Meetings				
(B) Basic Research Question	What would be the impact of scheduled climate conferences on market uncertainty?				
(C) Key Papers	Donders, M. W. & Vorst, T. C. (1996), 'The impact of firm specific news on implied volatilities', Journal of Banking & Finance 20(9), 1447-1461. Isakov, D. & Perignon, C. (2001), 'Evolution of market uncertainty around earnings announcements', Journal of Banking & Finance 25(9), 1769-1788.				
(D) Motivation/Puzzle	The UN COP meetings have been serving as a platform for continuous policy negotiations to address climate change. From the Kyoto Protocol to the Paris Agreement, the outcomes of the COP meetings have great implications for investments in fossil fuels and clean energy that a wholesale shift under the 2C climate deal to a low-carbon and climate-resilient economy is underway. However, given the uncertainty in the stringency and timing of climate policies and the difficulty in fulfilling the agreements, the demand for fossil fuels will not fall off a cliff all of a sudden. Hence, when faced with uncertainty that could be discretised into future plans of climate actions, one might ask (1) whether investors regard the COP meetings as an important source of information when valuing fossil fuels and clean energy; (2) whether the COP meetings have an impact on volatility dynamics as observed in the fossil fuel market and the clean energy market; (3) how quickly and efficiently the outcomes of the COP meetings are incorporated into financial market prices; (4) whether the fossil fuel market and the clean energy market react differently to the COP meetings; (5) whether the release of the outcomes resolves market uncertainty.				
THREE	Three core aspects of any empirical research project i.e., the "IDioTs" guide				
(E) Ideas?	The COP meetings are scheduled annually and the outcomes are released following the closure of the meeting. Hence, this study treats the releases of the outcomes as scheduled information in the sense that market knows ahead of time that the outcomes are upcoming after the meeting but not the information content of these decisions. Previous research shows that implied volatility tends to drift upwards before the release date and falls afterwards as the uncertainty is resolved (e.g. Patel & Wolfson 1979; Donders & Vorst 1996; Isakov & Perignon 2001). This study thus formulates two main working hypotheses: <i>H1: The implied volatility tends to increase before the release of the outcomes of the COP meetings.</i> <i>H2: The implied volatility tends to decrease after the dissemination of the outcomes of the COP meetings.</i>				
(F) Data?	Derived from the Arrow (1964)-Debreu (1959) model, the state-preference volatility indexes (FVX) for the fossil fuels and clean energy markets are applied to measure market uncertainty. The FVX is constructed with the ATM implied volatility inputs from the fuel futures and clean energy ETF options with data obtained from Bloomberg. This study also identifies 11 COP meeting over the sample period and identifies the event day accordingly.				
(G) Tools?	This study compares the state-preference volatilities of fossil fuels and clean energy during the periods around the COP meetings to the volatilities during normal periods and investigates whether these differences are significant by following a				

	<p>similar approach and regression model in Donders & Vorst (1996). Research Methodology: Event study approach. Regression analysis and data visualisation: SAS.</p>
TWO	Two key questions
(H) What's new?	<p>Unlike previous studies that use the implied standard deviation (Latane & Rendleman 1976; Donders & Vorst 1996; Ederington & Lee 1996; Isakov & Perignon 2001) or volatility indexes constructed with the VIX methodology (Nikkinen & Sahlstrom 2004a,b; Vahamaa & Aijo 2011), this study uses the state-preference volatility indexes to measure market uncertainty because the FVX proves to be an unbiased measure of market expectation of future volatility and possesses a relatively stronger information content in predicting the future realised volatility in the fossil fuel market as well as the clean energy market.</p> <p>A common feature of the previous studies is that they have a specific focus on the impact of the scheduled releases of financial information on market uncertainty (e.g. Donders & Vorst 1996; Ederington & Lee 1996; Isakov & Perignon 2001). This study departs from this feature by exploring the volatility patterns observed in financial markets around the COP meetings, which releases non-financial information regarding the valuation of fossil fuels and clean energy.</p> <p>This study also contributes to the existing literature by extending the analysis on the impact of scheduled information on market volatility to the energy markets, which play a vital role in the global economy.</p>
(I) So what?	<p>Understanding how the outcomes of the COP meetings relate to systematic volatility behaviour of fossil fuels and clean energy is important. First, predictable volatility patterns can help explain whether these markets perceive the non-financial information released from an international policy-making body with an aim to address climate change. Second, documented predictable patterns can shed light on how market participant process information in these markets and support the proposition that climate policies affect the market prices of fossil fuels and clean energy. Third, the speed of the drop in the volatility level after the disclosure of the outcomes of the COP meetings can help understand the relevance of climate policy decisions on security valuation.</p>
ONE	One bottom line
(J) Contribution?	<p>The results reveal that market participants regard the information content of the COP meetings to be important for the valuation of fossil fuels and clean energy. Understanding the signals market participants send allows policy makers to better interpret the market and align interests of various parties to address climate change.</p>
(K) Other Considerations	It is still a working paper at this stage which possibly requires additional tests and further amendment.

Pitch Template from Faff, Robert W., Pitching Research® (April 22, 2017). Available at SSRN: <https://ssrn.com/abstract=2462059> or <http://dx.doi.org/10.2139/ssrn.2462059>.