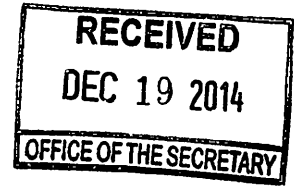UNITED STATES OF AMERICA

Before the

SECURITIES AND EXCHANGE COMMISSION

In the Matter of

HOUSTON AMERICAN ENERGY
CORP., JOHN F. TERWILLIGER, JR.,
UNDISCOVERED EQUITIES INC.,
and KEVIN T. McKNIGHT,

Respondents.

Administrative Proceeding File No. 3-16000

EXPERT REPORT OF BRANKO JOVANOVIC, PH.D.

November 21, 2014

Table of contents

List of figures

I. Background and scope of analysis

(1) Counsel for the Division of Enforcement of the US Securities and Exchange Commission (Division) has asked me to assess whether the news announcements made between November 10, 2009, and October 12, 2010, concerning Houston American Energy's (HUSA) participation in the CPO-4 Block, an oil and gas exploration and production (E&P) concession in the Llanos Basin of the Republic of Colombia, were important to investors.

II. Qualifications

(2) I am a Managing Economist with the economic consulting firm of Bates White, LLC. I have provided oral and/or written expert testimony before the International Chamber of Commerce International Court of Arbitration, the American Arbitration Association, and in US District Court for the Eastern District of New York.

(3) I received a bachelor's degree in Economics from the University of Belgrade, a master's degree in Economics from the Central European University, and a Ph.D. in Economics from Texas A&M University. My research has been published in peer-reviewed journals (*Review of Income and Wealth, Economics of Transition,* and the *World Bank Economic Review*) and in other outlets such as Securities Law360. Additionally, I have presented at forums during which attendees earn continuing legal education credits, and I have taught graduate-level econometrics courses at New York University and at Johns Hopkins University.

(4) My experience and education are more fully set out in my curriculum vitae, attached as Exhibit 1. Bates White is compensated for my time on this matter at a rate of $465 per hour. In addition to my own time, I directed other Bates White professionals who performed supporting work and analyses in connection with my preparation of this report. My opinions in this matter are in no way dependent on my or Bates White's compensation.

III. Materials relied upon

(5) The materials considered for the purposes of this report are the documents listed in Exhibit 2.

IV. Summary

(6)   My analysis focused on the period starting on November 10, 2009, the date of HUSA's first
announcement of "estimated recoverable reserves" for the CPO-4 Block, and ending on October 12,
2010, when HUSA released an independent prospective resource evaluation for the CPO-4 Block.
A systematic approach formally identified five dates within that time period on which news
announcements disseminated new information about the CPO-4 Block.[1] In addition to these five
dates, counsel for the Division also instructed me to incorporate into my analysis June 28, 2010, when
a Sharesleuth article questioning the CPO-4 Block's potential was published. The announcements on
each of these six dates (the "announcement dates") contained new information that was potentially
important to the company's investors. For the purpose of this report, an announcement date is
considered important if it resulted in a statistically significant change in the company's stock price.

(7)   News announcements on two of the six announcement dates had a positive and statistically significant
impact on HUSA's stock price, two had a negative and statistically significant impact on HUSA's
stock price, and two had a statistically insignificant impact. Figure 1 lists the four significant
announcements dates, briefly summarizes their informational content and the corresponding net-of-
market movements in HUSA's stock price, and indicates the extent to which these movements
deviated from historical trends.

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[1]   Because this report focuses on the instances in which new information was disseminated, any news announcement that
simply repeats already reported information is not included in the analyses.

Figure 1: Summary of news announcements important to investors

Date	Informational content	Identification method	Abnormal return (%)
November 10, 2009	HUSA furnished an investor presentation to the SEC (on November 9, 2009), stating that the CPO-4 Block had "estimated recoverable reserves of 1 to 4 billion barrels."[2]	Search criteria	10.3
February 16, 2010	An article published by Dow Jones Newswire included optimistic quotes about the prospects of the CPO-4 Block from a GHS research analyst in connection with an announcement by Petrominerales on 2/15/2010.[3]	Search criteria	13.3
April 7, 2010	The financial analysis website Seeking Alpha released two articles that questioned the CPO-4 Block's valuation.[4]	Search criteria	−27.6
June 28, 2010	A Sharesleuth article questioned the CPO-4 Block's potential.[5]	Counsel	−12.5

V. Factual bases for opinions

(8)   HUSA is an oil and gas E&P company that focuses its activities in South America (Colombia) and on the US on-shore Gulf Coast Region (Texas and Louisiana).[6] John F. Terwilliger has served as its President, CEO, and Chairman since its inception in April 2001.[7]

(9)   Prior to the investment in the CPO-4 Block, the company invested in a number of oil and gas E&P concessions in Colombia;[8] the company's interest in these and other investments ranged between 1.6% and 12.5%.[9] Between 2006 and 2009, the company's fractional interests produced a total of 376,000 barrels of oil.[10]

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[2] Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 12.

[3] Jennifer Cummings, "UPDATE: Houston American Gains on Success of Neighbor's Well," Dow Jones News Service, Feb. 16, 2010.

[4] Jennifer Cummings, "UPDATE: Houston American Down; Web Posting Says Co Set for Collapse," Dow Jones News Service, Apr. 7, 2010; Shareholders Unite, "Houston American Energy Priced for Perfection," Seeking Alpha, Apr. 7, 2010; Shareholder Watchdog, "Houston American Energy Corp. Set Up for Collapse," Seeking Alpha, Apr. 7, 2010.

[5] Chris Carey, "Small Texas Company Promotes Big South American Oil Venture," Sharesleuth, June 28, 2010, http://sharesleuth.com/investigations/2010/06/both_of_the_oil_companies.

[6] Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 28, 2008), at 3.

[7] Id. at 27.

[8] Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 29, 2010), at 5.

[9] Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 5.

[10] Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 29, 2010), at 8; Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 28, 2008), at 8.

(10)   On October 16, 2009, HUSA announced that it had finalized a "farmout" agreement and a joint operating agreement with SK Energy, a South Korean E&P company.[11] Through these agreements, HUSA acquired a 25% working interest in the CPO-4 Block. The CPO-4 Block was adjacent to a block developed by Petrominerales, an oil and gas E&P company operating in Colombia and Peru.[12]

(11)   HUSA first announced recoverable reserves estimates for the CPO-4 Block on November 10, 2009, in an investor presentation furnished to the SEC.[13] In this presentation, HUSA announced that the "CPO 4 Block consists of 345,452 net acres and contains over 100 identified leads or prospects with estimated recoverable reserves of 1 to 4 billion barrels."[14] At the time, HUSA's most recent annual report stated total proven oil reserves of 213,000 barrels.[15]

(12)   According to HUSA's CEO, the company's investment in the CPO-4 Block "was a transitional moment" for the company.[16] At that time, HUSA's investment in the CPO-4 Block was its largest fractional working interest in any E&P concession.[17]

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[11]   Houston American Energy Corp., Current Report (Form 8-K) (Oct. 16, 2009), ex. 99.1, HUSA Press Release, Oct. 2009. "Under the Farmout Agreement, Houston American has agreed to pay 25.0% of all past and future cost related to the CPO 4 block as well as an additional 12.5% of the Seismic Acquisition Costs incurred during the Phase 1 Work Program, for which Houston American will receive a 25.0% interest in the CPO 4 Block."

A farmout agreement is "a contractual agreement with an owner who holds a working interest in an oil and gas lease to assign all or part of that interest to another party in exchange for fulfilling contractually specified conditions. The farmout agreement often stipulates that the other party must drill a well to a certain depth, at a specified location, within a certain time frame; furthermore, the well typically must be completed as a commercial producer to earn an assignment." Schlumberger Oilfield Glossary, "Farmout," accessed Aug. 8, 2014, http://www.glossary.oilfield.slb.com/en/Terms.aspx?LookIn=term%20name&filter=farmout.

An operating agreement is "[a]n agreement between parties who own a working interest in a well that sets out responsibilities and duties of the operator and nonoperators, including drilling the test well and subsequent wells, and sharing of expenses and accounting methods." Schlumberger Oilfield Glossary, "Operating Agreement," accessed Aug. 22, 2014, http://www.glossary.oilfield.slb.com/en/Terms/o/operating_agreement.aspx.

[12]   Bloomberg, "Petrominerales Ltd," accessed June 11, 2014, http://www.bloomberg.com/quote/PMG:CN.

[13]   The SEC accepted this presentation after the market closed on November 9, 2009; the filing date was November 10, 2009. Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 12.

[14]   Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 12.

[15]   Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 16, 2009), at 8.

[16]   Order Instituting Cease-and-Desist Proceedings Pursuant to § 8A of the Sec. Act of 1933 and 21C of the Sec. Exch. Act of 1934, Aug. 4, 2014, ¶ 38.

[17]   Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 5; Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 29, 2010), at 4–5.

(13)　HUSA and its investment bank, Global Hunter Securities (GHS), continued to reach out to potential investors following the release of the November 10, 2009, 8-K, in part to promote HUSA's upcoming public offering.[18] GHS acted as the placement agent for HUSA's December 2009 public offering and also provided analyst coverage of the company.[19] On HUSA's behalf, GHS conducted road show presentations for potential investors in locations throughout the United States, including Dallas on November 24, 2009, and the West Coast on January 25–27, 2010.[20] In addition to road show presentations, both GHS and HUSA emailed potential investors as part of their promotional efforts.[21]

(14)　These emails often highlighted the CPO-4 Block's proximity to successful Petrominerales wells, suggesting that the CPO-4 Block's proximity to Petrominerales's wells would translate into similar success for HUSA.[22] In addition, on several occasions GHS emails referred to estimated quantities as high as 3–5 billion barrels of oil for the CPO-4 Block and attributed the estimates to SK Energy.[23]

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[18]　Order Instituting Cease-and-Desist Proceedings Pursuant to § 8A of the Sec. Act of 1933 and 21C of the Sec. Exch. Act of 1934, Aug. 4, 2014, ¶¶ 57–64.

[19]　*See* GRE00039479 (Global Hunter Securities, "Houston American Energy Corp.," Oct. 19, 2009); GRE00117874 (Global Hunter Securities, "Houston American Energy Corp.," Jan. 19, 2010). In its valuation of HUSA, GHS used an estimate of "total gross oil," which increased from 200 million barrels in the Oct. 19, 2009, report to almost one billion barrels (the lower bound of HUSA's own estimate) in the January 19, 2010, report. This change alone accounted for a fourfold increase in HUSA's price target.

[20]　GRE00066100 (Global Hunter Securities, "Houston American Energy Corp. (HUSA): Global Hunter Securities Non-Deal Dallas Roadshow," Nov. 24, 2009). Dallas Roadshow participants included the following investors: BBS Capital, Delos Investment, Atlas Capital, Hodges Capital, and WS Capital; GRE00118860 (Global Hunter Securities, "Houston American Energy Corp. (HUSA): Global Hunter Securities Non-Deal West Coast Roadshow," Jan. 19, 2010). The West Coast Roadshow participants included Lake Union Capital, TW Asset Management, Roxbury Capital, Fuller & Thaler, Cambrian Capital, Dunlap Equity, Alder Capital, NWQ Investment Management, and 300 North Capital, LLC.

[21]　*See, e.g.*, GRE00075169 (email from Stephen Mathes at Global Hunter Securities to Kyle Krueger at Apollo Capital Corp, "FW: HUSA-Details," (Dec. 1, 2009)); SEC-HO1107-006062 (email from James Jacobs, Chief Financial Officer, HUSA, to William Doyle, Columbia Management, "Petrominerales Announcement," and attachment *2010_01_03_Candelilla_Update.pdf* (Jan. 4, 2010)); GRE00103882 at 883 (email from Greg Tuerk at Global Hunter Securities to Charles Kist, "HUSA-My Home Run Pick for 2010-Incrimental Positive News Based on Petrominerales Announcement Today," (Jan. 4, 2010)); GRE00123542 (email from Stephen Mathes at Global Hunter Securities to Mike Scholten at Ingalls & Snyder, "Houston American (HUSA): 10+ Bagger in the Making?" (Jan. 25, 2010)); SEC-HO1107-005317 (email from John Terwilliger, Chief Executive Officer, HUSA, to William Doyle, Columbia Management, "Negritos-1" (Feb. 4, 2010)); GRE00141193 (email from Brandon Winkler, Global Hunter Securities LLC, to undisclosed recipients, "For Those Following the HUSA (and You Should Be)" (Feb. 16, 2010)); GRE00165026 (email from Tim Arthurs, Global Hunter Securities LLC, to undisclosed recipients, "HUSA: Petrominerales Drills Candelilla-3 Well, Another Positive Data Point for HUSA and Colombian Oil" (Mar. 18, 2010)).

[22]　*See, e.g.*, GRE00075169 (email from Stephen Mathes at Global Hunter Securities to Kyle Krueger at Apollo Capital Corp, "FW: HUSA-Details," (Dec. 1, 2009)); SEC-HO1107-006062 (email from James Jacobs, Chief Financial Officer, HUSA, to William Doyle, Columbia Management, "Petrominerales Announcement," and attachment *2010_01_03_Candelilla_Update.pdf* (Jan. 4, 2010)); GRE00103882 at 883 (email from Greg Tuerk at Global Hunter Securities to Charles Kist, "HUSA-My Home Run Pick for 2010-Incrimental Positive News Based on Petrominerales Announcement Today" (Jan. 4, 2010)); GRE00123542 (email from Stephen Mathes at Global Hunter Securities to Mike Scholten at Ingalls & Snyder, "Houston American (HUSA): 10+ Bagger in the Making?" (Jan. 25, 2010)) SEC-HO1107-005317 (email from John Terwilliger, Chief Executive Officer, HUSA, to William Doyle, Columbia Management, "Negritos-1" (Feb. 4, 2010)); GRE00141193 (email from Brandon Winkler, Global Hunter Securities LLC, to undisclosed recipients, "For Those Following the HUSA (and You Should Be)" (Feb. 16, 2010)); GRE00165026 (email from Tim Arthurs, Global Hunter Securities LLC, to undisclosed recipients, "HUSA:

(15)   On November 5, 2009, HUSA engaged Undiscovered Equities, a public relations company, to "increase the investment communities' awareness" of HUSA.[24] From November 9, 2009, to May 9, 2010, HUSA paid Undiscovered Equities $20,000 per month to promote HUSA to potential investors.[25, 26]

(16)   On April 7, 2010, an article released on Seeking Alpha, a financial analysis website, took issue with HUSA's valuation. The article stated: "one has to believe that a $15 million investment made just a few months ago is now worth over $500 million."[27] A second article issued by Seeking Alpha on the same day challenged the validity of a valuation based on the proximity of the CPO-4 Block to Petrominerales's Candelilla-1 and -2 wells: "All of this is a mere pipe dream based on some good wells having been discovered on adjacent properties."[28]

(17)   On June 28, 2010, a Sharesleuth article also questioned the CPO-4 Block's potential by stating: "Although Houston American executives have been talking up the CPO 4 prospect, their counterparts

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Petrominerales Drills Candelilla-3 Well, Another Positive Data Point for HUSA and Colombian Oil" (Mar. 18, 2010)).

[23]   *See, e.g.*, GRE00075169 at 169 (email from Stephen Mathes at Global Hunter Securities to Kyle Krueger at Apollo Capital Corp, "FW: HUSA-Details," (Dec. 1, 2009) ("SK Energy has estimated potential of 3–5 Billion barrels of oil under this property"); GRE00103882 at 883 (email from Greg Tuerk at Global Hunter Securities to Charles Kist, "HUSA-My Home Run Pick for 2010-Incrimental Positive News Based on Petrominerales Announcement Today," (Jan. 4, 2010)) ("we have heard SK Energy estimated reserves of between 3–5Billion Bbls of oil in the ground"); GRE00123542 (email from Stephen Mathes at Global Hunter Securities to Mike Scholten at Ingalls & Snyder, "Houston American (HUSA): 10+ Bagger in the Making?" (Jan. 25, 2010) ("In addition they [HUSA] will run seismic this year and begin drilling next year a property called *CPO-4* that could contain an addition 3–5 *billion* barrels of oil").

[24]   *See* testimony ex. 95 (Undiscovered Equities, Inc., Consulting Agreement between Undiscovered Equities, Inc., and Houston American Energy Corp., Nov. 5, 2009), at 1.

[25]   *See* testimony ex. 95 (Undiscovered Equities, Inc., Consulting Agreement between Undiscovered Equities, Inc., and Houston American Energy Corp., Nov. 5, 2009), at 1.

[26]   On December 31, 2009, Undiscovered Equities named HUSA one of its top picks for 2010. *See* testimony ex. 96 (Undiscovered Equities, "Undiscovered Equities' Top Picks for 2010," *Undiscovered Equities* (blog), Dec. 31, 2009, http://undiscoveredequities.blogspot.com/2009_12_01_archive.html), at 1. On January 5, 2010, Kevin McKnight from Undiscovered Equities sent a HUSA update highlighting positive production news from a Petrominerales well close to the CPO-4 Block. SEC-CKCooper-E-0007399 (email from Kevin McKnight, Undiscovered Equities, to Alex Montano, CK Cooper, "Houston American Energy (NASDAQ:HUSA) Petrominerales Announces 11,500 Barrel Per Day Well in Close Proximity to HUSA's CPO-4 Block" (Jan. 5, 2010)). Soon after, on January 11, 2010, McKnight highlighted HUSA as one of the top performers of the new year. SEC-Northeast-E-0005010 (email from Kevin McKnight, Undiscovered Equities, to Lee Tawes, Northeast Securities, "Undiscovered Equities Top Performers of The New Year" (Jan. 11, 2010)). In addition, McKnight highlighted positive press that HUSA received in other publications, namely the *Wall Street Journal*. On both February 17, 2010, and March 11, 2010, McKnight highlighted HUSA's recent coverage in the *Wall Street Journal*. Kevin McKnight, "Houston American Energy Corp Highlighted in the *Wall Street Journal* (NASDAQ:HUSA)," M2 Communications, Feb. 17, 2010; Kevin McKnight, "Houston American Energy Once Again Highlighted in the *Wall Street Journal*; Houston American Energy's Stake in Colombia may Pay Off," *Undiscovered Equities* (blog), Mar. 11, 2010, http://undiscoveredequities.blogspot.com/2010/03/houston-american-energy-once-again.html.

[27]   Shareholder Watchdog, "Houston American Energy Corp. Set Up for Collapse," Seeking Alpha, Apr. 7, 2010.

[28]   Shareholders Unite, "Houston American Energy Priced for Perfection," Seeking Alpha, Apr. 7, 2010.

at SK Energy have said little about the site's potential."[29] The article specifically questioned the validity of HUSA's claim regarding the CPO-4 Block's reserves.[30]

(18) On October 12, 2010, HUSA released a report prepared by an independent reserve engineer. In the report, the engineer estimated HUSA's share of the CPO-4 Block's unrisked prospective resources at 24.549 million barrels.[31] The report also noted that HUSA's share of the prospective resources was between 9.344 million and 63.439 million barrels under the low and high estimates, respectively.[32] Following this update on reserves, HUSA stock closed up at $12.76 on October 12, 2010.[33]

(19) In June 2011, HUSA announced that a drilling rig had been brought to the first well location in the CPO-4 Block.[34] After a series of setbacks,[35] on March 1, 2012, the company announced that the operator was going to plug the Tamandua-1 well because it had lost "the ability to effectively test the lower zones" but that it would continue to evaluate the C-7 and C-9 formations in the CPO-4 Block.[36] Finally, on April 19, 2012, the company announced that it was also going to "cease efforts to test and complete the C7 and C9 formations."[37]

(20) Figure 2 plots HUSA's stock price from January 2009 through December 2012. The figure shows that

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[29] Chris Carey, "Small Texas Company Promotes Big South American Oil Venture," Sharesleuth, June 28, 2010, http://sharesleuth.com/investigations/2010/06/both_of_the_oil_companies.

[30] *Id.*

[31] Houston American Energy Corp., Current Report (Form 8-K) (Oct. 12, 2010), ex. 99.1, HUSA Investor Presentation, Oct. 2010, at 11.

[32] *Id.*

[33] Houston American Energy Corp. closing price, via Bloomberg LP, accessed Sept. 3, 2014.

[34] "Houston American Energy Moves Rig to CPO Four Block Located in Colombia," M2 EquityBites, June 17, 2011.

[35] In its October 7, 2011, Form 8-K filing, HUSA announced that drilling was stopped in order to stabilize the inflow of hydrocarbons, reducing geological risk. *See* "Form 8-K: Houston American Energy Files Current Report," US Fed News, Oct. 7, 2011. HUSA announced plans to sidetrack the well due to the problems it had experienced. Benjamin Alexander-Bloch, "Gulf of Mexico Natural Gas Rig Blew while Completing 'Sidetrack Well,'" NOLA Media Group, July 23, 2013, http://www.nola.com/traffic/index.ssf/2013/07/gulf_of_mexico_natural_gas_rig.html. ("A sidetrack well uses the same hole as the original well but then spreads to a new location at the same depth.") An article from Business News Americas stated that despite drilling taking longer than expected, HUSA was encouraged by "the strong shows of hydrocarbons . . . in the first objective sand." "Houston sidetracks CPO-4 well on drilling issues," Business News Americas, Oct. 5, 2011. In December 2011, the Tamandua-1 sidetrack was drilled to approximately 14,000 feet of its projected depth of 16,300 feet. In an 8-K filing, HUSA noted that it was encouraged by sands found in the well but that there was no guarantee the well would prove commercially viable. "Form 8-K: Houston American Energy Files Current Report," US Fed News, Dec. 21, 2011. During that same month, drilling was again suspended due to unexpected pressure and hydrocarbon flows. "Houston Suspends Drilling on CPO-4 due to Strong Pressure," Business News Americas, Dec. 21, 2011.

[36] Houston American Energy Corp., "Houston American Energy Provides Update on the Tamandua #1 Well – Completion Attempt in the C-9 and C-7 Sands," news release, Mar. 1, 2012, *available at* http://www.houstonamericanenergy.com/prview.html?id=276.

[37] Houston American Energy Corp., "Houston American Energy Announces Termination of Testing and Completion Efforts on Tamandua #1 Well, Plans for Next Well on CPO 4 Block in Colombia and Confirms SEC Investigation," news release, Apr. 19, 2012, *available at* http://www.houstonamericanenergy.com/prview.html?id=284.

the stock price began to increase rapidly soon after HUSA first announced the 1 billion to 4 billion barrel recoverable reserves estimate. It continued to increase during the months of HUSA's and GHS's promotional efforts. However, the stock price fell sharply on the days that both the Seeking Alpha and Sharesleuth articles were released. HUSA's share price rose on the day that an engineer released an independent resource estimate for the CPO-4 Block. The stock price fell both on the day of the announcement to plug Tamandua-1 and on the day that testing was terminated at Tamandua-1.

Figure 2: HUSA stock price (2009–2012)
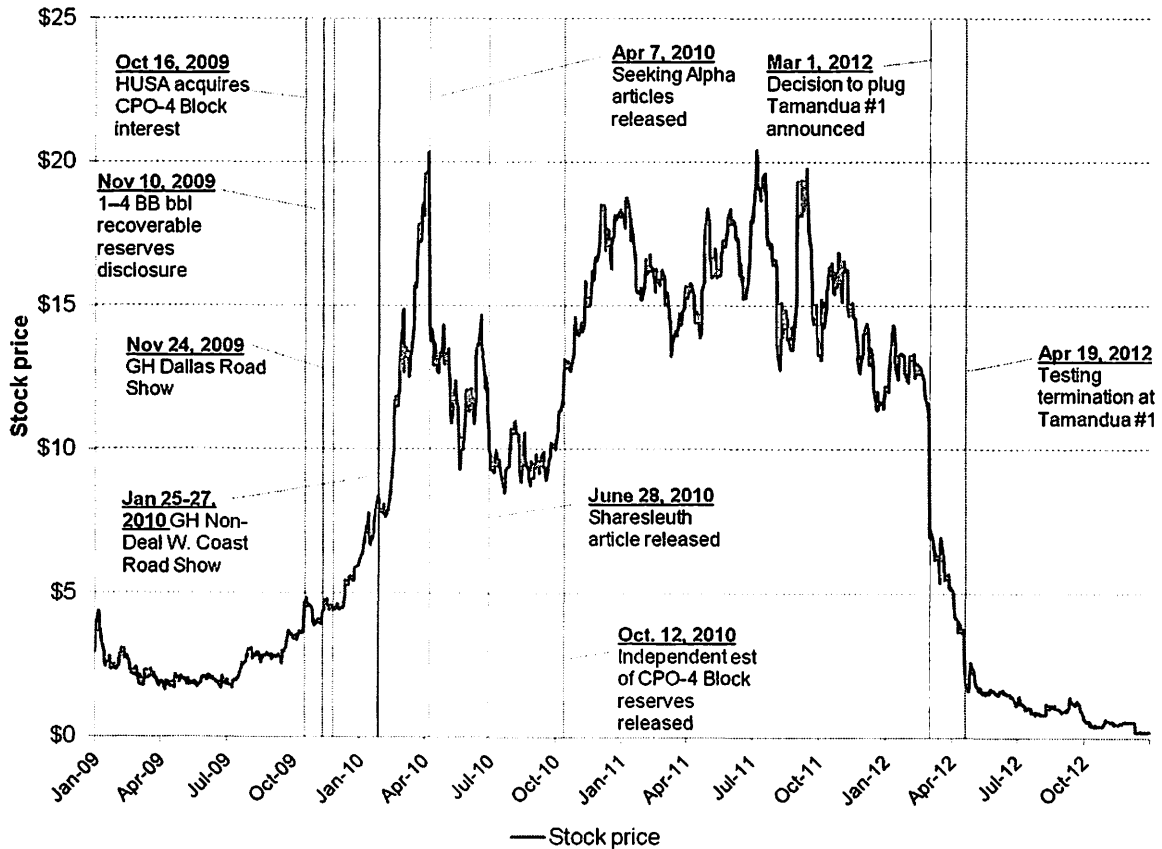
Source: Bloomberg data, news articles, and press releases.

VI. Analytical bases of opinion

(21)   As detailed in the previous section, HUSA made numerous representations to prospective investors regarding its investment in the CPO-4 Block. These representations, which were made in a series of news announcements, had a significant impact on the company's valuation. This section presents the details of my analyses relating to the importance of HUSA's representations to the company's investors. In particular, it describes the methodology used to identify CPO-4 Block-related news announcements and outlines the statistical tests used to examine their importance and statistical significance.

VI.A. Valuation of an E&P company

(22)   One way to assess the importance of a news announcement to investors is to analyze its effect on the valuation of the company and, consequently, its stock price. Basic financial theory stipulates that the value of any asset is the present value of the expected cash flows from that asset.[38, 39, 40] A company's valuation reflects the best available information and is continually updated as new information that affects the valuation inputs becomes available.[41]

(23)   An E&P company, such as HUSA, generates cash flows from the sale of oil, gas, and related assets.[42, 43] The present value of the cash flows for an E&P company is based on the estimated

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[38]   Aswath Damodaran, *Damodaran on Valuation* (Hoboken, NJ: Wiley Finance, 2006), at 9–10. This is referred as the discounted cash flow (DCF) approach to valuation. Another approach, the relative valuation approach, "estimates the value of an asset by looking at the pricing of comparable assets relative to a common variable like earnings, cash flows book value or sales."

[39]   In the case of a firm, the stock price is the discounted present value of the future cash flows of the firm on a per-share basis. In this DCF approach, the value of a firm is estimated based on three inputs: expected cash flows, the timing of the cash flow, and the discount rate to convert the future cash flows to a present value basis. Aswath Damodaran, *Damodaran on Valuation* (Hoboken, NJ: Wiley Finance, 2006), at 13.

[40]   "While the methods used to value equities differ in technique, they share a common goal of estimating the stock's intrinsic value—a measure of the present value (PV) of the expected future payoffs to shareholders. In our opinion, a combination of two approaches helps to substantiate the best estimate of a firm's equity: direct valuation (discounting of estimated future cash flows, net asset valuation, or options) and relative valuation (market multiples of comparable companies)." Standard and Poor's Industry Surveys, "Oil & Gas: Production & Marketing," Aug. 27, 2009, at 40.

[41]   Aswath Damodaran, *Damodaran on Valuation* (Hoboken, NJ: Wiley Finance, 2006), at 7. "As new information comes in, [analysts] should update their valuations to reflect the new information."

[42]   The reserves can be broadly classified as proved (developed and undeveloped) and unproved (probable and possible) reserves. *See* Modernization of Oil and Gas Reporting; Final Rule, 17 C.F.R. pts. 210, 211, 229, and 249 (2009), § D, "Proved Oil and Gas Reserves," § F, "Developed and Undeveloped Oil and Gas Reserves," § H, "Unproved Reserves– 'Probable Reserves' and 'Possible Reserves,'" *available at* http://www.sec.gov/rules/final/2009/33-8995fr.pdf.

[43]   Companies in the exploration and production of oil and gas operate in the "upstream" segment of the industry. The other segments are "midstream" ("transportation, storage, and trading of crude oil, refined products, and natural gas") and "downstream" ("refining and marketing of crude oil"). Standard and Poor's Industry Surveys, "Oil & Gas: Production & Marketing," Aug. 27, 2009, at 24.

ultimate recoveries of oil and gas at projected prices minus all costs (exploration costs, development costs, production costs, operating expenses, taxes, etc.) discounted at the estimated cost of capital.[44, 45] Because of uncertainty associated with ultimate recovery, the likelihood of successful extraction is another important consideration in the valuation. Thus, news announcements containing new information about the company's estimated ultimate recoveries or the likelihood of recovery may affect investors' valuation of the company, and therefore its stock price.

(24)   In this case, information regarding the estimates of ultimate recoveries at the CPO-4 Block and the likelihood of their successful extraction were key inputs in the valuation performed by equity research analysts at GHS. On October 19, 2009, GHS estimated that HUSA's investment in the CPO-4 Block added $2.59 per share in value to HUSA's stock price. To arrive at this estimate, GHS's valuation inputs included net locations, EUR-MBOE for each location,[46] price per BOE,[47] and a discount factor.

(25)   First, GHS projected EUR-MBOE at 1,000 for 50 net locations, which combined for a total EUR-MBOE of 50,000 (50 net locations multiplied by 1,000 EUR-MBOE per location). At a per-barrel price of $14.55, the CPO-4 Block's value to HUSA was calculated as $727,500,000 (50,000 EUR-MBOE multiplied by 1,000 multiplied by $14.55 per barrel).[48] GHS used a discount factor of 90%, resulting in a discounted net asset value (DNAV) of $72,750,000 ($727,500,000 value multiplied by 0.1, 1 less 0.9 discount factor).[49] Last, GHS divided DNAV by HUSA's outstanding shares to find the $2.59 value per share of the CPO-4 Block ($72,750,000 DNAV divided by 28,062,000 shares).

(26)   Figure 3 depicts the impact of new information provided by HUSA regarding its higher "estimated recoverable reserves" on GHS's estimate of the per-share value of the CPO-4 Block, which contributed to an increase of $9.12 per share between GHS's October 19, 2009, and January 19, 2010, research reports.[50] The estimated ultimate recovery was not the only input that changed between the

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[44]   For instance, HUSA reported in its 2009 10-K filing that the present value (before tax and indirect costs) of its proved reserves at a 10% discount rate (PV-10) was $15.8 million. "The estimated present value of proved reserves does not include indirect expenses such as general and administrative expenses, debt service and future income tax expense or depletion, depreciation, and amortization." Houston American Energy Corp., Annual Report (Form 10-K) (Mar. 29, 2010), at 9–10.

[45]   For instance, the high prices of oil and gas benefit the E&P or upstream companies. "Finding (or exploration) costs reflect the expense of searching for new oil and gas reserves. Development costs reflect the expense in preparing the reserves for production by obtaining access to the reserves and building the facilities needed. Production (or lifting) costs reflect the efficiency of the company's oil and gas production." Standard and Poor's Industry Surveys, "Oil & Gas: Production & Marketing," Aug. 27, 2009, at 38.

[46]   EUR-MBOE stands for estimated ultimate recovery, thousands of barrels of oil equivalent

[47]   BOE stands for barrels of oil equivalent.

[48]   The 1,000 is included in this calculation because EUR-MBOE is *thousands* of barrels of oil equivalent.

[49]   DNAV stands for discounted net asset value.

[50]   GRE00039479 (Global Hunter Securities, "Houston American Energy Corp.," Oct. 19, 2009); GRE00117874 (Global Hunter Securities, "Houston American Energy Corp.," Jan. 19, 2010).

two GHS valuations; projected price per barrel increased by $0.45, and the number of shares outstanding increased by about 10%.

Figure 3: CPO-4 Block valuation illustration

Valuation	HUSA EUR-MBOE[51]	Per BOE[52]	Value	Discount factor	DNAV	Shares outstanding	Per share
	A	B	C = (A × 1000) × B	D	E = C × (1 – D)	F	G = E / F
Oct. 19, 2009	50,000[53]	$14.55	$727,500,000	90%	$72,750,000	28,062,000	$2.59
Jan. 19, 2010	242,000[54]	$15.00	$3,630,000,000	90%	$363,000,000	31,000,000	$11.71
Hypothetical scenarios							
1	242,000	$14.55	$3,521,100,000	90%	$352,110,000	28,062,000	$12.55
2	242,000	$15.00	$3,630,000,000	99%	$36,300,000	31,000,000	$1.17
3	50,000	$14.55	$727,500,000	75%	$181,875,000	28,062,000	$6.48

Source: GRE00039479 (Global Hunter Securities, "Houston American Energy Corp.," Oct. 19, 2009), at 480; GRE00117874 (Global Hunter Securities, "Houston American Energy Corp.," Jan. 19, 2010), at 882. Both reports provided a valuation of HUSA's stock price, taking into account HUSA's 25% working interest in the CPO-4 Block, and assume a likelihood of success of 10% (equivalent to a discount factor of 90%). While the October 19, 2009, valuation uses the gross oil reserve estimate of 200 million barrels as its input and calculates the value per-share price at $2.59,[55] the January 19, 2010, valuation increased the gross oil reserve estimates to nearly one billion barrels and calculates the value per-share price at $11.71.[56]

(27)   To illustrate the sensitivity of valuations to changes in key inputs, Figure 3 also presents three hypothetical valuations by using GHS's methodology. These hypothetical scenarios demonstrate how the CPO-4 Block per-share valuation would change as two inputs (the estimated ultimate recoveries and discount factor) change, while keeping the other inputs constant.

(28)   The first hypothetical scenario illustrates the change to the CPO-4 Block valuation attributable to the increase to the EUR-MBOE between the two reports.[57] In isolation, the increased EUR-MBOE raises the price per share by $9.96, from $2.59 to $12.55.

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[51]   EUR-MBOE stands for estimated ultimate recovery, thousands of barrels of oil equivalent.

[52]   BOE stands for barrels of oil equivalent.

[53]   Based on GHS's estimate, HUSA's share of gross oil resource is 50 million (50 net locations multiplied by 1,000 EUR-MBOE) and the total CPO-4 Block gross oil resource is 200 million (i.e., 50 million HUSA share divided by 25% working interest).

[54]   Based on GHS's estimate, HUSA's share of gross oil resource is 242 million (22 net locations multiplied by 11,000 EUR-MBOE) and the total CPO-4 Block gross oil resource is 968 million (i.e., 242 million HUSA share divided by 25% working interest).

[55]   GRE00039479 (Global Hunter Securities, "Houston American Energy Corp.," Oct. 19, 2009), at 80. Total gross oil reserves of 200 million = 50 net locations x 1,000 EUR-BOE / 25% discount. EUR stands for estimated ultimate recovery, and BOE stands for barrels of oil equivalent.

[56]   GRE00117874 (Global Hunter Securities, "Houston American Energy Corp.," Jan. 19, 2010), at 82. Total gross oil reserves of 968 million barrels = 22 net locations x 11,000 EUR-BOE / 25% discount.

[57]   In other words, its price per BOE and the number of shares outstanding are constant between the two periods.

(29)   Hypothetical scenarios two and three illustrate changes in valuation attributable to changes in the likelihood of successful extraction. Hypothetical scenario two illustrates the change to the January 19, 2010, CPO-4 Block valuation, assuming a likelihood of success of 1% rather than 10%. This change alone would cause the resulting valuation to be ten times smaller, or $1.17 per share.[58] Hypothetical scenario three illustrates the change to the October 19, 2009, valuation, assuming a likelihood of success of 25% rather than 10%. This change alone would cause the valuation to increase from $2.59 to $6.48.

(30)   The hypothetical scenarios illustrate that estimated ultimate recovery and discount rates are key inputs into the valuation of E&P companies. For that reason, other things remaining equal, news announcements containing new, positive information about EUR-MBOE or discount rates should increase HUSA's valuation and stock price.

VI.B. Identification of the CPO-4 Block-related news announcements

(31)   I developed a systematic approach to formally identify dates on which new information related to the CPO-4 Block was disseminated during the period from November 10, 2009, the date of HUSA's first announcement of the CPO-4 Block's estimated recoverable reserves, to October 12, 2010, when HUSA released an independent resource estimate of the CPO-4 Block's reserves.[59]

(32)   The systematic approach consisted of: 1) a Factiva search to identify news articles containing either "Houston American Energy," "Houston Amer Energy," or "HUSA," and either "CPO-4," "CPO4," or "CPO 4";[60] and 2) a review of HUSA's 8-K filings from that same period for CPO-4 Block-related announcements and their effective dates. With the exception of the June 28, 2010, Sharesleuth article, news disseminated through sources not captured by either Factiva or the company's filings was not included in further analyses.[61]

(33)   The systematic approach identified articles that contained new information and excluded those articles containing only redundant information. For example, on February 16, 2009, Jennifer Cummings of Dow Jones published an article titled "Houston American Gains on Success of

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[58]   A likelihood of 1% is equivalent to a discount factor of 99%.

[59]   Because I focus on the instances in which new information was disseminated, any news announcements that simply repeat already reported information are not included in the analyses.

[60]   I used the "remove duplicates" setting in Factiva to eliminate articles with very similar content.

[61]   The Sharesleuth article was not available on Factiva and therefore could not have been captured by the search algorithm. The search algorithm also cannot identify instances in which the company's prospects were either discussed with investors at road show meetings or via personal communication.

Neighbor's Well." On February 17, 2010, Undiscovered Equities reprinted the article.[62] Because the reprint did not contain any new information, it was not considered as a news announcement.

(34)   By using the systematic approach, I identified five announcement dates during the relevant time period. In addition to these five announcement dates, counsel for the Division also instructed me to incorporate into my analysis June 28, 2010, when Sharesleuth posted an article questioning the CPO-4 Block's potential. The news announcements on the six announcement dates are summarized in the following section.

VI.B.1. CPO-4 Block-related news announcements

(35)   **November 10, 2009**: HUSA first announced "estimated recoverable reserves" for the CPO-4 Block in the November 10, 2009, investor presentation.[63] In this presentation, HUSA announced that the "CPO 4 Block consists of 345,452 net acres and contains over 100 identified leads or prospects with estimated recoverable reserves of 1 to 4 billion barrels."[64] News regarding the CPO-4 Block's estimated recoverable reserves would have been expected to affect HUSA's valuation and stock price.[65] The presentation appears to have been made public after the market closed on November 9, 2009. For that reason, November 10, 2009, is considered the effective date of the presentation for purposes of this report.[66]

(36)   **February 16, 2010**: Jennifer Cummings of Dow Jones published an article titled "Houston American Gains on Success of Neighbor's Well." The article reviewed announcements made during the previous day about production at Candelilla-2, a Petrominerales well close to the CPO-4 Block. It included quotes about the prospects of the CPO-4 Block from GHS analyst Philip McPherson and HUSA CFO James Jacobs. Specifically, McPherson calculated that "at the rates the Candelilla wells are producing, a company working in this area could earn back its investment in less than a month." Jacobs stated, "We're very excited about the prospects we have and about recreating some of the success Petrominerales has had." The article also noted that HUSA and SK Energy expected to start drilling their first well in the CPO-4 Block later in 2010.[67, 68] The news regarding Petrominerales's

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[62]   Kevin McKnight, "Houston American Energy Corp Highlighted in the *Wall Street Journal*," M2 Communications, Feb. 17, 2010.

[63]   Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 12.

[64]   *Id.*

[65]   *See supra* VI.A.

[66]   The effective date refers not to the date of publication but to the date when an announcement would be expected to have an impact on HUSA's stock price. In other words, a news announcement that occurred after market close would have an impact on the stock price on the next trading day.

[67]   Jennifer Cummings, "UPDATE: Houston American Gains on Success of Neighbor's Well," Dow Jones News Service, Feb. 16, 2010.

Candelilla-2 well suggested that the CPO-4 Block's proximity to Petrominerales's wells would translate into similar success and may have caused investors to increase their expected likelihood of success at the CPO-4 Block and therefore lowered their discount factor. This would have had a positive effect on estimated expected cash flows from the CPO-4 Block used in HUSA's valuation and a positive effect on HUSA's stock price.[69] Because this article was published at 12:47 p.m., its effective date is February 16, 2010.[70]

(37)   **April 7, 2010**: Two Seeking Alpha articles questioned HUSA's valuation. One article stated, "one has to believe that a $15 million investment made just a few months ago is now worth over $500 million."[71] It also hypothesized that HUSA investors were unaware about, or overlooking, "prior indiscretions by HUSA's management team at a bankrupted company."[72] Related to the CPO-4 Block, the article noted that SK Energy's willingness to "dump" 50% of its interest should be considered "a massive red flag" and that "[a]t the very best, we believe there is a huge disconnect between the valuations of Petrominerales Ltd, who has proven success in Colombia, and the highly speculative investment in HUSA."[73] The other article challenged the validity of a valuation based on the proximity of the CPO-4 Block to Petrominerales's Candelilla-1 and -2 wells. Specifically, the article stated that a recent analyst report valuing HUSA's share of the CPO-4 Block at $67 to $269 per share, "or a market cap for HUSA of $2.2-$9B," went "**completely overboard.**" It noted that Petrominerales's market cap was $3.2 billion, meaning that "[e]**ven if HUSA would be as successful as Petrominerales, it could only reach roughly 25% of their valuation (or $800M).** And we're pretty close to that already, and all that based on wells on adjacent properties." The analyses and critiques put forth by the articles questioned the reported estimated recoverable reserves and HUSA's

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[68]   Note that this article was reprinted by the *Wall Street Journal* on February 16 and Undiscovered Equities on February 17, 2010. February 17, 2010, is not included as a news announcement date because the reprint did not contain new information. *See* Kevin McKnight, "Houston American Energy Corp Highlighted in the *Wall Street Journal*," M2 Communications, Feb. 17, 2010; GRE00141413 (company-wide email from Richard D. Hastings, GH Securities, containing *Wall Street Journal* article "GHS in the Media: Phil McPherson – WSJ/Dow Jones – Houston American Gains On Success Of Neighbor's Well" (Feb. 16, 2010)). An article published on March 3, 2010, titled "Houston American's Colombia Stake may Pay Big" contained similarly optimistic quotes about the prospects of the CPO-4 Block from Global Hunter Securities analyst Philip McPherson and HUSA's CFO James Jacobs. GRE00155558 (email from Jennifer Cummings to Philip McPherson containing article "Houston American's Colombia Stake may Pay Big" (Mar. 3, 2010)).

[69]   *See supra* VI.A.

[70]   Jennifer Cummings, "UPDATE: Houston American Gains on Success of Neighbor's Well," Dow Jones News Service, Feb. 16, 2010.

[71]   Shareholder Watchdog, "Houston American Energy Corp. Set Up for Collapse," Seeking Alpha, Apr. 7, 2010.

[72]   *Id.*

[73]   *Id.*

likelihood of success, both of which are likely to negatively affect HUSA's stock price.[74] Because the articles were published at 3:21 am and 11:15 am, their effective date is April 7, 2010.[75]

(38) **June 28, 2010**: A Sharesleuth article questioned the CPO-4 Block's potential by stating: "Although Houston American executives have been talking up the CPO 4 prospect, their counterparts at SK Energy have said little about the site's potential."[76] The article noted that HUSA's November 10, 2009, investor presentation stated that a field next to the CPO-4 Block was estimated to contain 610 million barrels of recoverable oil. However, Sharesleuth reached out to the owner of that field, which said it did not know where the 610 million barrel estimate came from. In addition, Sharesleuth discussed the CPO-4 Block with an executive at another oil company that had bid on it. The article stated, "He said his company did not see as much potential as Houston American and its partners do. He added that the geology of the area makes it unlikely that anyone will find a giant reservoir of oil there."[77] Because the article further questioned the validity of HUSA's claim regarding the CPO-4 Block's estimated recoverable reserves, it would have likely increased HUSA's discount factor and therefore negatively affected its stock price.[78] Because this article was published at 4:26 a.m., its effective date is June 28, 2010.[79]

(39) **August 2, 2010**: On July 31, 2010, HUSA announced that it had reached a deal with SK Energy to acquire an additional 12.5% stake in the CPO-4 Block, bringing its interest from 25% to 37.5%.[80] HUSA agreed to pay a proportional interest in development and operating costs, as well as certain defined past costs.[81] On August 6, 2010, HUSA filed an 8-K related to this agreement.[82] This acquisition increased HUSA's share of estimated recoverable reserves in the CPO-4 Block, an action that could have had an effect on HUSA's per-share CPO-4 Block valuation.[83] Because July 31, 2010, was a Saturday, the effective date of this announcement is Monday, August 2, 2010.

(40) **October 12, 2010**: HUSA released the executive summary of the independent reserve engineer's report. The summary contained the engineer's estimate that HUSA's interest in the CPO-4 Block

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[74] *See supra* VI.A.

[75] Shareholders Unite, "Houston American Energy Priced for Perfection," Seeking Alpha, Apr. 7, 2010.

[76] Chris Carey, "Small Texas Company Promotes Big South American Oil Venture," Sharesleuth, June 28, 2010, http://sharesleuth.com/investigations/2010/06/both_of_the_oil_companies.

[77] *Id.*

[78] *See supra* VI.A.

[79] Chris Carey, "Small Texas Company Promotes Big South American Oil Venture," Sharesleuth, June 28, 2010, http://sharesleuth.com/investigations/2010/06/both_of_the_oil_companies.

[80] Note that the effective date for this announcement is August 2, the following Monday.

[81] "Houston American Energy to Acquire 12.5% Additional Stake in CPO 4 Block," Datamonitor's Financial Deals Tracker, July 31, 2010.

[82] Houston American Energy Corp., Current Report (Form 8-K) (Aug. 6, 2010), at 2.

[83] *See supra* VI.A.

consisted of 24.549 million barrels of unrisked prospective resources.[84] The engineer also noted that HUSA's share of the unrisked prospective resources was between 9.344 million and 63.349 million barrels under the low and high estimates, respectively.[85] It is unclear how this report would have affected HUSA's stock price. If investors at the time still gave credence to HUSA's recoverable reserves estimate of 1–4 billion barrels, then this report showing unrisked prospective resources at 24.549 million barrels would be expected to have negatively affected HUSA's stock price. However, if investors had discounted or disregarded HUSA's statements about estimated recoverable reserves, then based on the articles described above or other information known to investors, an independent engineer's report showing unrisked prospective resources could have positively affected HUSA's stock price.[86] A summary of the report was furnished to the SEC as an exhibit to an 8-K filed on October 12, 2010, at 8:03 a.m. For purposes of this report, October 12, 2010, is considered the effective date.

VI.C. Significance of the CPO-4 Block-related news announcements to the company's investors

(41)   To assess whether the news announcements regarding the CPO-4 Block oil quantities identified in the previous section were important to investors, I rely on the event study methodology.[87] The results of event studies are used to calculate the difference between the actual stock price and the price at which the stock would have traded if the announcements had not been made.

VI.C.1. Event study

(42)   An event study, which is designed to measure the price movement of a security in response to new information, is conducted in two stages. First, a market model is created that predicts the returns for a stock based on the returns for a market index.[88] In the second stage, a statistical test is used to determine whether the portion of the stock's return that cannot be explained by the returns for the market index is too large to be due to chance alone and is therefore attributable to the news.

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[84]   Houston American Energy Corp., Current Report (Form 8-K) (Oct. 12, 2010), ex. 99.1, HUSA Investor Presentation, Oct. 2010, at 11.

[85]   *Id.*

[86]   *See supra* VI.A.

[87]   *See, e.g., In re Exec. Telecard Ltd. Sec. Litig.*, 979 F.Supp. 1021 (S.D.N.Y. 1997); *In re Imperial Credit Indus., Inc. Sec. Litig.*, 2003 WL 1563084 (C.D. Cal. 2003).

[88]   Market models can be used for securities other than stocks and can contain, for example, an industry index in addition to, or in place of, a broad market index. They can also be used to analyze a group of securities rather than just a single security.

(43) The market model estimated in the first stage of an event study separates the stock's returns into two parts: the portion of returns explained by the market index and the part attributable to company-specific factors. This latter portion, known as the idiosyncratic or abnormal return, includes any part of the return caused by factors unrelated to the general market movement, such as firm-specific information released on that day.

(44) The market model also measures the variability of the company-specific portion of the stock's returns, which is known as the standard error. The standard error is used to assess the statistical significance of the price movement following an event, such as a news announcement. The larger the standard error of the market model, the greater the abnormal return will have to be for it to be considered statistically significant or different from what one would expect to see in the absence of important news.

(45) Market models are often estimated over the year prior to the beginning of an event, or a set of events, and thus do not directly measure the variability of the stock's returns at the time of the event. Insofar as a stock's volatility is similar around the time of the event and during the estimation period, the standard error of the market model may be an accurate measure of company-specific variability at the time of the event.

(46) If the stock's volatility during the estimation period and at the time of the event differs, then the standard error of the market model may be an inaccurate measure of company-specific variability at the time of the event. This is especially true in instances in which the relevant period (the estimation period and the period in which an event, or a set of events, took place) encompasses periods of market stability and periods of uncertain and tumultuous markets.

VI.C.2. Volatility during the relevant period

(47) I estimated the model over the year prior to November 10, 2009, when HUSA first announced its recoverable reserves estimate for the CPO-4 Block. Part of this estimation period overlaps with a period of increased market volatility from December 2007 to June 2009 stemming from a recession and financial crisis in the US economy.[89] Figure 4 illustrates the steady increase in 30-day historical (actual) and implied (expected) average daily market volatility, as measured by the volatility of the S&P 100 index.[90] Figure 5 plots daily S&P 100 implied volatility and daily S&P 100 historical

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[89] National Bureau of Economic Research, Business Cycle Dating Committee, Sept. 20, 2010, *available at* http://www.nber.org/cycles/sept2010.pdf. ("At its meeting, the committee determined that a trough in business activity occurred in the US economy in June 2009. The trough marks the end of the recession that began in December 2007 and the beginning of an expansion. The recession lasted 18 months, which makes it the longest of any recession since World War II.")

[90] Implied volatility reflects the market's expectation of daily volatility and is defined as an estimate of volatility based on a stock's option price. Trading an option is essentially taking a bet on the volatility of the stock underlying it. By using

volatility, as well as the historical volatility of the CRB Wildcatters Index during the July 2006–June 2013 time period.[91]

Figure 4: S&P 100 average daily implied volatility and average daily historical volatility (July 2004–June 2013)
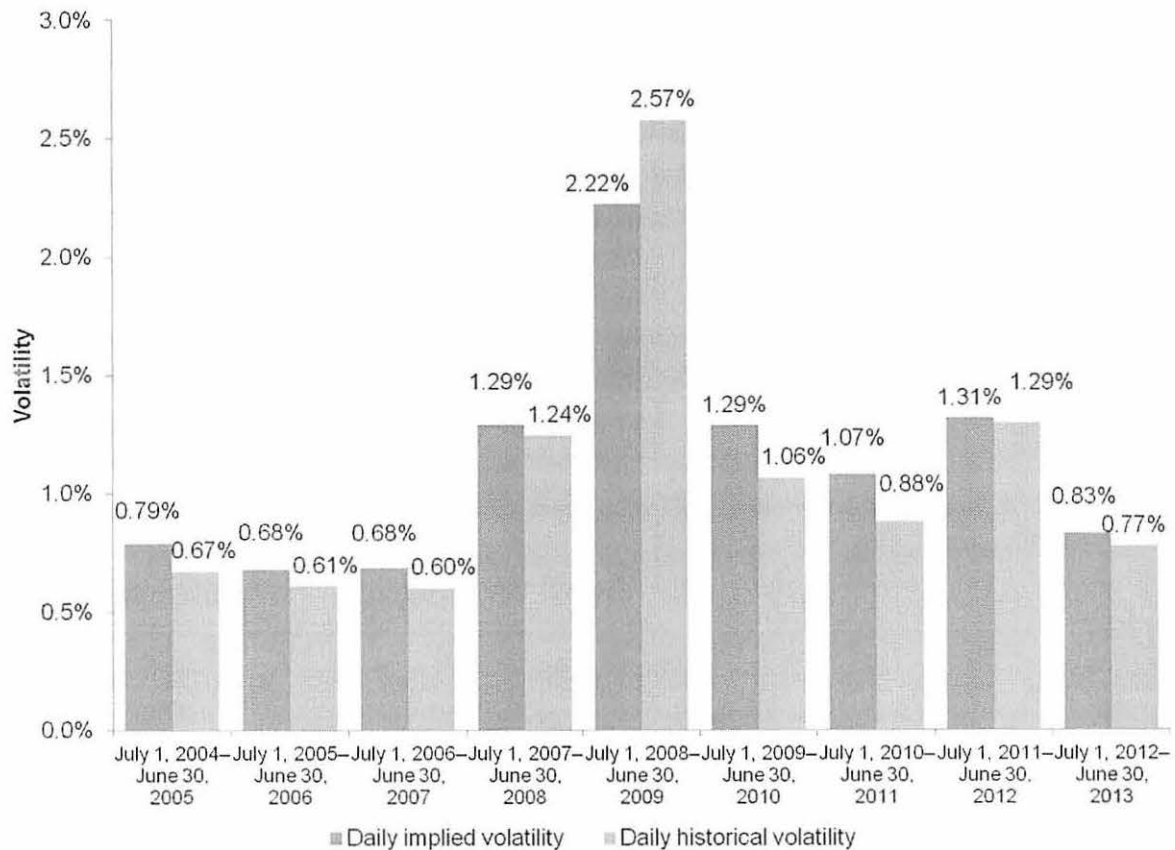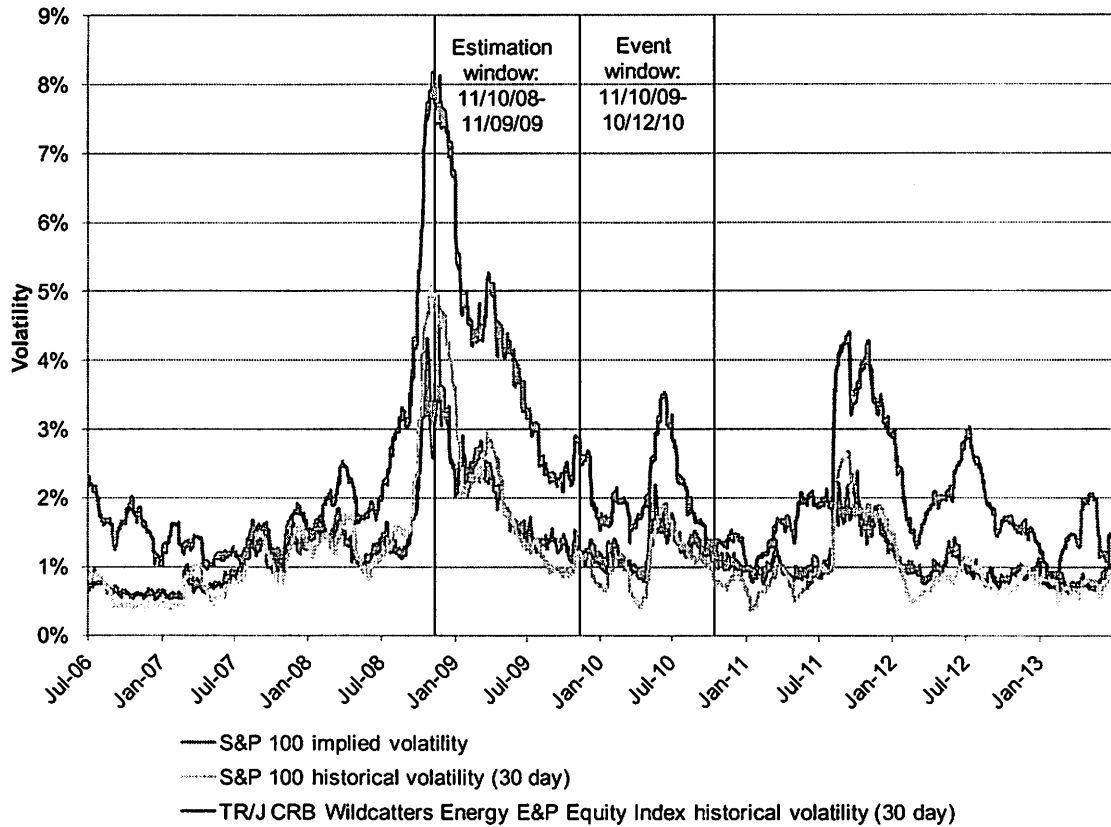

Source: S&P 100 Index historical call implied volatility and historical put implied volatility, via Bloomberg LP, accessed Sept. 3, 2014. The implied volatility is the average of call and put implied volatility. Average implied volatility and historical volatility is the average annual volatility divided by the square root of the number of trading days (252). According to Bloomberg, the implied volatility for the underlying securities is calculated from a weighted average of the volatilities of the two closest options expiring at least 20 business days out. The historical volatility is based on the relative price changes for the 30 most recent trading days.

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the well-known Black-Scholes option-pricing formula, the market expectation of volatility can be backed out from the market prices of traded options.

[91] As explained later in this report, the CRB Wildcatters Index is an equities index designed by Thompson Reuters and Jefferies to serve as a benchmark for small-cap and mid-cap American and Canadian companies that are principally engaged in natural gas and oil E&P. Because the options on this index are not traded, the implied volatility is not available.
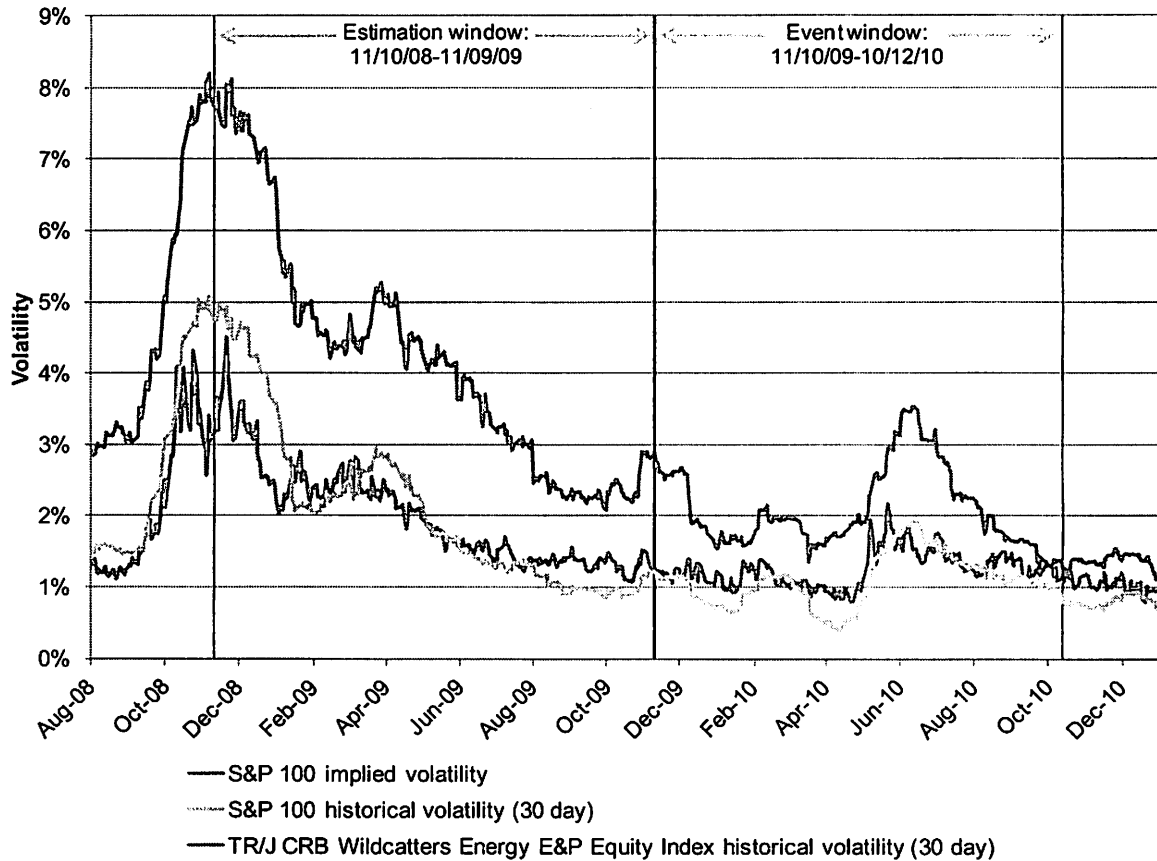
Figure 5: Daily S&P 100 implied volatility, S&P 100 historical volatility, and TR E&P Energy Index historical volatility (July 2006–June 2013)

— S&P 100 implied volatility

······ S&P 100 historical volatility (30 day)

— TR/J CRB Wildcatters Energy E&P Equity Index historical volatility (30 day)

Source: S&P 100 Index historical call implied volatility and historical put implied volatility, S&P 100 Index historical volatility (30 day), and Thomson Reuters/Jefferies CRB Wildcatters Energy E&P Equity Index historical volatility (30 day), via Bloomberg LP, accessed Sept. 3, 2014. The implied volatility is the average of call and put implied volatility. The daily implied and historical volatility is the average annual volatility divided by the square root of the number of trading days (252).

(48)   As illustrated in Figure 4 and Figure 5, market volatility was elevated during the period used to estimate the market model (November 10, 2008–November 9, 2009). Figure 6 focuses on the November 10, 2008–October 12, 2010, period, and it shows that the levels of volatility observed during the estimation period and during the event period (November 10, 2009–October 12, 2010) were substantially different. The start of the estimation period coincides with the point at which the market volatility reached its peak. The volatility declined steadily through the estimation period and remained relatively low throughout the event window.

Figure 6: Daily S&P 100 implied volatility, S&P 100 historical volatility, and TR E&P Energy Index historical volatility (August 2008–December 2010)

—— S&P 100 implied volatility

········ S&P 100 historical volatility (30 day)

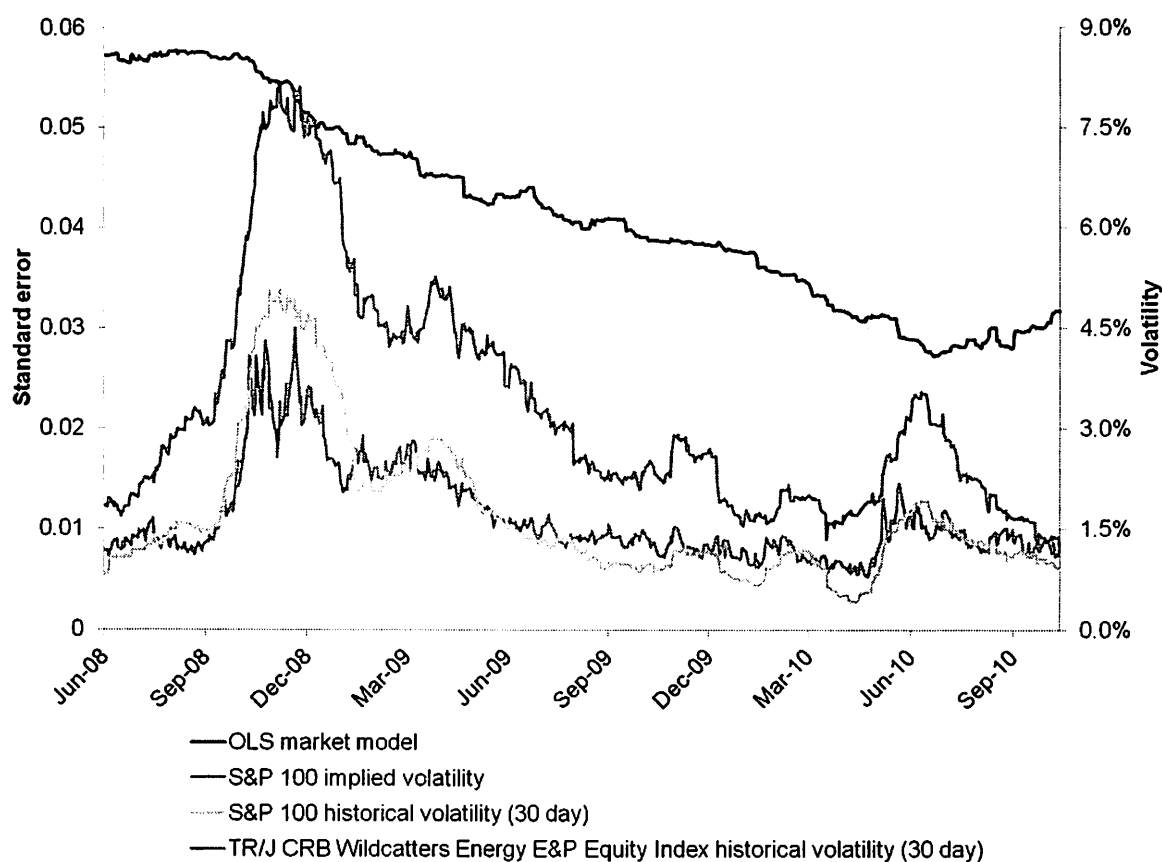—— TR/J CRB Wildcatters Energy E&P Equity Index historical volatility (30 day)

Source: S&P 100 Index historical call implied volatility and historical put implied volatility, S&P 100 Index historical volatility (30 day), and Thomson Reuters/Jefferies CRB Wildcatters Energy E&P Equity Index historical volatility (30 day), via Bloomberg LP, accessed Sept. 3, 2014. The implied volatility is the average of call and put implied volatility. The daily implied and historical volatility is the average annual volatility divided by the square root of the number of trading days (252).

(49)   The fact that volatility is changing through time means that the standard error of the estimated market model can also change depending on the time period over which it is estimated. This is important because if the standard error that is used to assess the statistical significance of the event days is overestimated, then the statistical significance of the event days will be understated. To illustrate this point, I estimate the model by using Ordinary Least Squares (OLS) applied to the sequence of one-year periods beginning on June 1, 2008, and ending on October 12, 2010.[92] The standard errors from

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[92]   Ordinary Least Squares (OLS) is "[a] method for estimating the parameters of a multiple linear regression model. The ordinary least squares estimates are obtained by minimizing the sum of squared residuals." Jeffrey M. Wooldridge, *Introductory Econometrics* (Mason, OH: Thomson Higher Education, 2006), at 867.

this exercise, which I plot in Figure 7,[93] exhibit a marked decline throughout the relevant period, from almost 6% when the market model is estimated over the June 2008–June 2009 estimation period to below 3% when the market model is estimated over the June 2010–June 2011 estimation period. This decline in the standard errors implies that the statistical significance—and, hence, the importance of an event that occurred during the period of lower volatility—would be understated if one relied on the standard error computed from the period of higher volatility. Indeed, a 10% abnormal return would be statistically significant at the 1% level of significance if evaluated by using the standard error from the June 2010–June 2011 estimation period but would be insignificant at this same level of significance if evaluated by using the standard error from the June 2008–June 2009 estimation period.

Figure 7: Standard error of Ordinary Least Squares market models using a rolling one-year estimation period and the three measures of volatility displayed in Figure 5 and Figure 6

— OLS market model
— S&P 100 implied volatility
······ S&P 100 historical volatility (30 day)
— TR/J CRB Wildcatters Energy E&P Equity Index historical volatility (30 day)

Source: S&P 100 Index historical call implied volatility and historical put implied volatility, S&P 100 Index historical volatility (30 day), and Thomson Reuters/Jefferies CRB Wildcatters Energy E&P Equity Index historical volatility (30 day), via Bloomberg LP, accessed Sept. 3, 2014. The implied volatility is the average of call and put implied volatility. The daily implied and historical volatility is the average annual volatility divided by the square root of the number of trading days (252).

[93] For instance, the value shown for June 1, 2008, is the standard error for the estimation period from June 1, 2008, to May 31, 2009.

VI.C.3. Market model estimation

(50) As I explained earlier, a standard approach to assess the importance of news announcements to investors is to estimate a market model, which establishes how the company's returns vary with the returns of the market and industry indices:

$$R_t^A = \alpha + \beta_1 R_t^M + \beta_2 R_t^I + \varepsilon_t, \tag{1}$$

where R_t^A is a return of Company A on day t, R_t^M is a return of the broad market index on day t, R_t^I is a return of the industry index on day t, α is a constant term that depicts the trend that would be observed in the company's returns if the market were flat, β_1 is a coefficient capturing how the stock returns vary relative to the market index, β_2 is a coefficient capturing how the stock returns vary relative to the industry index, and ε_t is an error term that depicts the movement of the stock's returns that cannot be explained either by the movement in a market or industry indices. The error term is also referred to as the company-specific portion of the stock's return.

(51) I model HUSA's daily stock returns as a function of the S&P 500 index's daily returns (which capture the returns of a broad market index), the daily returns of the CRB Wildcatters Index (which capture the returns of an industry index), and an error term that captures the movement of the company's returns that cannot be explained either by the movement in the market or industry indices. The CRB Wildcatters Index is an equities index designed by Thompson Reuters and Jefferies to serve as a benchmark for small-cap and mid-cap American and Canadian companies that are principally engaged in natural gas and oil E&P.[94]

(52) To address the fact that the market volatility changed over the relevant period,[95] I use a statistical approach that allows me to predict the expected return and company-specific volatility in the event window, which can then be used in the tests of statistical significance. The idiosyncratic volatility can be estimated by using a generalized autoregressive conditional heteroskedasticity (GARCH) model.[96] A GARCH model is used to account for scenarios in which the volatility of the market is

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[94] Both HUSA and Petrominerales were among the constituents of this index in March–December 2010 and January–February 2010, respectively, but their "weights" did not exceed 0.63% and 1.73%, respectively. Thomson Reuters/Jefferies CRB Wildcatters Energy E&P Equity Index, via Bloomberg LP, accessed Sept. 3, 2014.

[95] I apply the Breusch–Pagan (1979), Cook–Weisberg (1983), and White (1980) tests to test the null hypothesis that the estimated market model residuals are homoskedastic, meaning that they have a constant variance. The Breusch–Pagan and Cook–Weisberg test suggests that the null hypothesis of homoskedasticity can be rejected at the 7.47% level of significance. The White test provides even stronger evidence against the null hypothesis. It suggests that the null hypothesis of homoskedasticity can be rejected at the 0.01% significance level. Trevor S. Breusch and Adrian R. Pagan, "A Simple Test for Heteroscedasticity and Random Coefficient Variation," *Econometrica* 47, no. 5 (1979): 1287–94; R. Dennis Cook and Sanford Weisberg, "Diagnostics for Heteroscedasticity in Regression," *Biometrika* 70, no. 1 (1983): 1–10; Halbert White, "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica* 48, no. 4 (1980): 817–38.

[96] Albert Corhay, and A. Tourani Rad, "Conditional Heteroskedasticity Adjusted Market Model and an Event Study,"

time-dependent. In other words, the idiosyncratic portion of the return (depicted by the error term, the difference between the actual return and that implied by the market model) changes over time and is dependent on the previous periods' idiosyncratic returns and their volatility.

(53)   A GARCH(1,1) model, a particular form of a GARCH model in which the variation of the error term is directly determined by only one lag term of the error term itself and one lag term of its variation,[97] is shown below.

$$R_t^A = \alpha + \beta_1 R_t^M + \beta_2 R_t^I + \varepsilon_t \qquad (2)$$

$$\text{Var}(\varepsilon_t) = \sigma_t^2 = \gamma_0 + \delta_1 \varepsilon_{t-1}^2 + \delta_2 \sigma_{t-1}^2$$

The first of the above equations represents the baseline market model described in paragraph (50). The error term ε_t depicts the movement in the stock's returns that cannot be explained by the movement in either the market or industry indices. The second equation captures how this company-specific variation of Company A's return evolves over time. In this equation, $\gamma 0$ is a constant, ε_{t-1}^2 is the lagged error term ("ARCH term"), and σ_{t-1}^2 represents the variation of the lagged error term ("GARCH term").[98]

VI.C.4. Results

(54)   As noted above, I estimated the model over the year prior to November 10, 2009, when HUSA first announced its recoverable reserves estimate for the CPO-4 Block. In order to obtain a "clean" benchmark period, any news associated with the CPO-4 Block would have to be excluded from the estimation period. On October 16, 2009, the company announced that it finalized its farmout agreement and joint operating agreement with SK Energy and acquired 25% rights to the CPO-4 Block in the Western Llanos Basin of Columbia. The investment in the CPO-4 Block was the largest

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Quarterly Journal of Economics and Finance 36, no. 4 (1996): 529–38.

[97]   The economic literature provides evidence that the volatility process of financial asset prices can be well approximated by GARCH(1,1). For example, Ashley and Patterson (2010) show that the GARCH(1,1) specification cannot be rejected in the daily series of the "CRSP" equally weighted stock index in the sample period from January 6, 2006, to December 31, 2007. Richard A. Ashley and Douglas M. Patterson, "A Test of the GARCH(1,1) Specification for Daily Stock Returns," Macroeconomic Dynamics 14 (2010): 137–44. For another example, Hansen and Lunde (2001) compare 330 different volatility models with the two benchmark models, ARCH(1) and GARCH(1,1), and find that none of the alternative model specifications provide a significantly better forecast than GARCH(1,1). The estimation samples are daily exchange rate data (DM/$) from October 1, 1992, to September 30, 1993, and daily IBM stock prices from June 1, 1999, to May 21, 2000. P. Reinhard Hansen and Asger Lunde, "A Comparison of Volatility Models: Does Anything Beat A GARCH(1,1)?" (Working Paper Series No. 84, Center for Analytical Finance, University of Aarhus, Mar. 2001).

[98]   I tested the significance of the abnormal returns for all CPO-4 Block-related news announcement days based on GARCH models with different orders of ARCH and GARCH terms (ranging from 1 to 5). The significance of the abnormal returns is robust with respect to the choice of GARCH model specification.

working interest in an E&P concession in the company's history. For that reason, I excluded October 16, 2009, from the estimation period.

(55) The market model estimates are presented in Figure 8. The constant term is small and insignificant at the 5% significance level, which means that after controlling for market and industry movements, the company's stock did not exhibit a trend. The coefficient associated with the S&P 500 index is significant at the 5% significance level and equals 1.5, which implies that a 1% increase in the S&P 500 index, holding all else equal, is associated with a 1.5% increase in HUSA's stock price. Similarly, the coefficient associated with the CRB Wildcatters Index is significant (at the 5% significance level) and equals 0.32, which implies that a 1% increase in the CRB Wildcatters Index, holding all else equal, is associated with an approximately 0.32% increase in HUSA's stock price.[99]

(56) Figure 8 also includes the estimated coefficients of the GARCH(1,1) model. While the coefficient on the ARCH term (δ_1 in equation system 2) is insignificant, the coefficient on the GARCH term (δ_2 in the same system) is statistically significant and shows that on average, the company's volatility on a day t equals 0.77 of its volatility on the previous day.

Figure 8: Market model estimated by using GARCH(1,1): November 10, 2008–November 9, 2009

Statistic	Coefficient	p-value
Constant	−0.001	0.853
S&P 500 Index	1.505	0.000
CRB Wildcatters Index	0.322	0.024
Variance modeling		
Constant	0.000	0.283
ARCH	0.074	0.186
GARCH	0.773	0.000
Number of observations	251	
R-squared[100]	0.405	

(57) The magnitude of the abnormal returns associated with the news announcements of the company's investment in the CPO-4 Block and their statistical significance are summarized in Figure 9. The second column contains the company's abnormal returns. The third column displays the standard error, which measures the uncertainty regarding the estimated coefficient (similar to a margin of error in a political poll). The p-value, which is displayed in the next-to-last column, describes the level of statistical significance of the estimated coefficient (the p-value is the probability of obtaining a

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[99] During the estimation period, the two indices have a correlation of 0.85. I estimated the market model by using the industry index alone. The number of statistically significant news dates and the magnitude of the log abnormal returns are robust with respect to the exclusion of the market index.

[100] R-squared is calculated by using the residuals implied by the coefficient estimates.

coefficient just as large as, or larger than, the estimated coefficient if, in fact, the true value of the coefficient is zero). The last column indicates whether the abnormal return is statistically significant at the 5% significance level.

Figure 9: Abnormal returns for all CPO-4 Block-related news announcement days

Date	Abnormal log returns	Standard error	p-value[101]	Statistically significant
Nov. 10, 2009	0.098	0.049	0.047	Yes
Feb. 16, 2010	0.125	0.047	0.008	Yes
Apr. 7, 2010	−0.324	0.049	0.000	Yes
June 28, 2010	-0.133	0.049	0.007	Yes
Aug. 2, 2010	−0.056	0.053	0.288	No
Oct. 12, 2010	0.075	0.046	0.101	No

VI.C.5. Sensitivity analyses

(58) To corroborate the findings from the GARCH model, I also estimated an OLS model over a one-year period starting in November 10, 2009, when HUSA first announced its recoverable reserves estimate for the CPO-4 Block. In order to obtain a "clean" benchmark period, any news associated with the CPO-4 Block would have to be excluded from the estimation period. For that reason, I excluded all days discussed in section VI.B.1.

(59) The OLS event window model estimates are presented in Figure 10, and the magnitude of the abnormal returns associated with the news announcements of the company's investment in the CPO-4 Block and their statistical significance based on the OLS model are summarized in Figure 11.[102]

(60) The OLS estimates yield four statistically significant CPO-4 Block news dates: November 10, 2009, February 16, 2010, and April 7, 2010. October 12, 2010, is statistically significant at the 6.16% significance level. The constant term, which captures the company's daily net-of-market log return, equals 0.0054 (approximately 0.5% daily net-of-market return) and is statistically significant.

(61) Figure 11 shows that the abnormal returns and corresponding p-values for the announcement dates related to the CPO-4 Block are very similar to the results from the GARCH model as depicted in Figure 9.

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[101] p-values are calculated by using t-statistic, which assumes that the residuals are normally distributed.

[102] The Breusch–Pagan and Cook–Weisberg test suggests that the null hypothesis of homoskedasticity cannot be rejected.

Figure 10: Market model estimated by using OLS: November 10, 2009–November 9, 2010

Statistic	Coefficient	p-value
Constant	0.005	0.029
S&P 500 Index	0.574	0.167
CRB Wildcatters Index	0.639	0.006
Number of observations	246	
R-squared	0.195	

Figure 11: Abnormal returns for all CPO-4 Block-related news announcement days based on OLS model

Date	Abnormal log returns	Root mean-squared error	p-value	Statistically significant
Nov. 10, 2009	0.092	0.038	0.017	Yes
Feb. 16, 2010	0.126	0.038	0.001	Yes
Apr. 7, 2010	−0.330	0.038	0.000	Yes
June 28, 2010	−0.136	0.038	0.000	Yes
Aug. 2, 2010	−0.048	0.038	0.209	No
Oct. 12, 2010	0.072	0.038	0.062	No

VII. Conclusion

(62) I have analyzed news announcements on six different dates, all related to HUSA's CPO-4 Block investment. Four of these announcement dates are associated with company-specific price returns that are statistically significant at the 5% significance level. Therefore, by using the 5% significance level as an importance threshold, I conclude that the news announcements on November 10, 2009, February 16, 2010, April 7, 2010, and June 28, 2010, contained new information that was important to the company's investors. Figure 12 provides the actual and abnormal (net-of-market) price change and percentage return for the four significant days.

Figure 12: Price change and percent return for statistically significant CPO-4 Block-related news announcement days

Date	Price change			Percentage return		
	Actual	Predicted	Abnormal	Actual	Predicted	Abnormal
Nov. 10, 2009	$0.40	($0.00)	$0.41	10.2%	−0.1%	10.3%
Feb. 16, 2010	1.49	0.314	1.18	17.5	3.7	13.3
Apr. 7, 2010	(5.84)	(0.30)	(5.54)	−28.7	−1.5	−27.6
June 28, 2010	(1.66)	(0.11)	(1.55)	−13.2	−0.9	−12.5

(63)   As I explained earlier, on November 10, 2009, HUSA announced that the "CPO 4 Block consists of 345,452 net acres and contains over 100 identified leads or prospects with estimated recoverable reserves of 1 to 4 billion barrels."[103] This was HUSA's first announcement regarding estimated recoverable reserves on the CPO-4 Block, an important input in the company's valuation. In the wake of the announcement, the company's stock price increased from $3.95 to $4.35. A price increase of $0.41 (10.3%) is attributable to the information released in the November 10, 2009, announcement and results in an increase in HUSA's market capitalization of $11,480,317.[104]

(64)   On February 16, 2010, a Dow Jones article reported recent positive announcements made about production at Candelilla-2, a Petrominerales well close to the CPO-4 Block. This information positively affected investors' expected likelihood of the CPO-4 Block's success and therefore lowered the discount factor. In the wake of the announcement, the company's stock price increased from $8.52 to $10.10. A price increase of $1.18 (13.3%) is attributable to the information released in the February 16, 2010, Dow Jones article and results in an increase in HUSA's market capitalization of $33,040,911.[105]

(65)   On April 7, 2010, two Seeking Alpha articles questioned HUSA's valuation. One article also hypothesized that HUSA investors were unaware about, or overlooking, management's previous indiscretions. The other challenged the validity of a valuation based on the proximity of the CPO-4 Block to other producing wells. This information negatively affected investors' expected likelihood of the CPO-4 Block's success and therefore increased the discount factor. In the wake of the announcement, the company's stock price fell from $20.35 to $15.51. A price drop of $5.84 (−27.6%)

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[103]   Houston American Energy Corp., Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009, at 12.

[104]   28,000,772 shares outstanding multiplied by an abnormal price increase of $0.41 per share.

[105]   28,000,772 shares outstanding multiplied by an abnormal price increase of $1.18 per share.

is attributable to the information released in the April 7, 2010, Seeking Alpha articles and results in a decrease in HUSA's market capitalization of $172,187,477.[106]

(66) On June 28, 2010, a Sharesleuth article further questioned the CPO-4 Block's potential and had a negative effect on the company's valuation. In the wake of the announcement, the company's stock price dropped from $12.54 to $10.88. A price drop of $1.55 (-12.5%) is attributable to the information released in the June 28, 2010, Sharesleuth article and results in a decrease in HUSA's market capitalization of $48,175,197.[107]

(67) In this report, I have outlined my opinions and the basis for them. I reserve the right to expand, amend, and/or change this report based upon additional information that may be subsequently provided to or obtained by me.

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Branko Jovanovic, Ph.D.

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11 / 21 / 2014
November 21, 2014

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[106] 31,080,772 shares outstanding multiplied by an abnormal price decrease of $5.54 per share.
[107] 31,080,772 shares outstanding multiplied by an abnormal price decrease of $1.55 per share.

Exhibit 1. Curriculum vitae

Branko Jovanovic, Ph.D.

Education

- Ph.D., Economics, Texas A&M University

- M.A., Economics, Central European University, Prague, Czech Republic

- B.S., Economics, School of Economics, University of Belgrade, Serbia

Professional Experience

- Assistant Adjunct Professor, Microeconometrics, John Hopkins University, May 2014–present

- Principal, AFE Consulting, 2011–2012

- Senior Consultant, NERA, 2005–2011

- Assistant Adjunct Professor, Applied Statistics and Econometrics, New York University, 2007

- Economist, CapAnalysis, 2001–2004

- Consultant, World Bank, 1998–2001

- Teaching Assistant, Department of Economics, Texas A&M University, 1996–2001

Expert filings and testimony

- *Magic Hours Prod., Inc. v. TIME of My Life Pty Ltd.*, ICDR Case No. 50 140 T 00647 11. Arbitration, Jan. 23, 2013; expert report, Nov. 16, 2012. Opined on damages stemming from violation of certain contractual rights.

- *Joseph v. Hogan*, No. 06-CV-1042 (E.D.N.Y. 2006). Declaration, June 16, 2011; deposition testimony, Feb. 3, 2011; expert report, June 29, 2010; rebuttal report, Jan. 5, 2011. Reports opined on specific aspects of the sampling methodology developed by Plaintiff's expert.

- *Calvert-Jones v. Helinet Aviation Serv., LLC*, No. BC 368522 (Cal. Super. Ct., L.A. Cnty. 2007). Declaration, Dec. 12, 2007. Opined on the necessity of financial documents withheld by Defendant for the purpose of equity valuation.

- *Tabbane v. Colgate Palmolive Serv.* (ICC 2008). Expert report, Dec. 19, 2008; rebuttal expert report, Jan. 30, 2009. Reports opined on Claimant's experts' methodology for estimating damages arising from the termination of a business relationship.

■ *In re Countrywide Fin. Corp. Sec. Litig.*, No. 07-CV-005295 (C.D. Cal. 2007). Declaration, Mar. 24, 2010. Opined on the availability of public information relevant for a securities fraud case.

Publications

■ "Testing for Materiality in Volatile Markets" (with Edward Fox). Securities Law360, Jan. 14, 2010. (Previously published as a NERA working paper, Jan. 2010.)

■ "Wage Differentials between the Private and the State Sector in Moscow" (with Michael Lokshin). *Review of Income and Wealth* 50, no. 1 (2004): 107–23.

■ "Public-Private Sector Employment Choice and Wage Differentials in Yugoslavia" (with Michael Lokshin). *Economics of Transition* 11, no. 3 (2003): 463–91.

■ "Russian Roller Coaster: Expenditures Instability in Russia, 1994–1998." *Review of Income and Wealth* 47, no. 2 (2001): 251–72.

■ "Change in the Perception of the Poverty Line During the Times of Depression: Russia, 1993–1996" (with Branko Milanovic). *World Bank Economic Review* 13, no. 3 (1999): 539–59.

Working papers

■ "Options Backdating: The Statistics of Luck" (with Renzo Comolli, Patrick Conroy, and Erik Stettler). NERA working paper, Mar. 2007.

■ "Do Options Backdating Class Actions Settle For Less?" (with Robert Patton and Svetlana Starykh). NERA working paper, June 2008.

Exhibit 2. Materials relied upon

Legal documents

■ Order Instituting Cease-and-Desist Proceedings Pursuant to § 8A of the Sec. Act of 1933 and 21C of the Sec. Exch. Act of 1934, Aug. 4, 2014.

SEC filings

■ Houston American Energy Corp. Annual Report (Form 10-K) (Mar. 28, 2008).

■ Houston American Energy Corp. Annual Report (Form 10-K) (Mar. 16, 2009).

■ Houston American Energy Corp. Annual Report (Form 10-K) (Mar. 29, 2010).

■ Houston American Energy Corp. Current Report (Form 8-K) (Oct. 16, 2009), ex. 99.1, HUSA Press Release, Oct. 2009.

■ Houston American Energy Corp. Current Report (Form 8-K) (Nov. 10, 2009), ex. 99.1, HUSA Investor Presentation, Nov. 2009.

■ Houston American Energy Corp. Current Report (Form 8-K) (Aug. 6, 2010).

■ Houston American Energy Corp. Current Report (Form 8-K) (Oct. 12, 2010), ex. 99.1, HUSA Investor Presentation, Oct. 2010.

■ Houston American Energy Corp. Quarterly Report (Form 10-Q) (Nov. 5, 2009).

■ Houston American Energy Corp. Quarterly Report (Form 10-Q) (May 7, 2010).

Discovery documents (bates number beginning)

■ GRE00039479 (Global Hunter Securities, "Houston American Energy Corp.," Oct. 19, 2009).

■ GRE00066100 (Global Hunter Securities, "Houston American Energy Corp. (HUSA): Global Hunter Securities Non-Deal Dallas Roadshow," Nov. 24, 2009).

■ GRE00075169 (email from Stephen Mathes at Global Hunter Securities to Kyle Krueger at Apollo Capital Corp, "FW: HUSA-Details," (Dec. 1, 2009)).

■ GRE00103882 (email from Greg Tuerk at Global Hunter Securities to Charles Kist, "HUSA-My Home Run Pick for 2010-Incrimental Positive News Based on Petrominerales Announcement Today," (Jan. 4, 2010)).

■ GRE00117874 (Global Hunter Securities, "Houston American Energy Corp.," Jan. 19, 2010).

- GRE00118860 (Global Hunter Securities, "Houston American Energy Corp. (HUSA): Global Hunter Securities Non-Deal West Coast Roadshow," Jan. 19, 2010).

- GRE00123542 (email from Stephen Mathes at Global Hunter Securities to Mike Scholten at Ingalls & Snyder, "Houston American (HUSA): 10+ Bagger in the Making?" (Jan. 25, 2010)).

- GRE00141193 (email from Brandon Winkler, Global Hunter Securities LLC, to undisclosed recipients, "For Those Following the HUSA (and You Should Be)" (Feb. 16, 2010)).

- GRE00141413 (company-wide email from Richard D. Hastings, GH Securities containing Dow Jones article, "GHS in the Media: Phil McPherson – WSJ/Dow Jones – Houston American Gains On Success Of Neighbor's Well" (Feb. 16, 2010)).

- GRE00155558 (email from Jennifer Cummings to Philip McPherson containing article "Houston American's Colombia Stake may Pay Big" (Mar. 3, 2010)).

- GRE00165026 (email from Tim Arthurs, Global Hunter Securities LLC, to undisclosed recipients, "HUSA: Petrominerales Drills Candelilla-3 Well, Another Positive Data Point for HUSA and Colombian Oil" (Mar. 18, 2010)).

- SEC-CKCooper-E-0007399 (email from Kevin McKnight, Undiscovered Equities, to Alex Montano, CK Cooper, "Houston American Energy (NASDAQ:HUSA) Petrominerales Announces 11,500 Barrel Per Day Well in Close Proximity to HUSA's CPO-4 Block" (Jan. 5, 2010)).

- SEC-HO1107-005317 (email from John Terwilliger, Chief Executive Officer, HUSA, to William Doyle, Columbia Management, "Negritos-1" (Feb. 4, 2010)).

- SEC-HO1107-006062 (email from James Jacobs, Chief Financial Officer, HUSA, to William Doyle, Columbia Management, "Petrominerales Announcement," and attachment *2010_01_03_Candelilla_Update.pdf* (Jan. 4, 2010)).

- SEC-Northeast-E-0005010 (email from Kevin McKnight, Undiscovered Equities, to Lee Tawes, Northeast Securities, "Undiscovered Equities Top Performers of the New Year" (Jan. 11, 2010)).

- Testimony ex. 95 (Undiscovered Equities, Inc. Consulting Agreement between Undiscovered Equities, Inc., and Houston American Energy Corp., Nov. 9, 2009).

- Testimony ex. 96 (Undiscovered Equities. "Undiscovered Equities' Top Picks for 2010." *Undiscovered Equities* (blog), Dec. 31, 2009, http://undiscoveredequities.blogspot.com/2009_12 _01_archive.html).

News articles and press releases

- Alexander-Bloch, Benjamin. "Gulf of Mexico Natural Gas Rig Blew while Completing 'Sidetrack Well.'" NOLA Media Group, July 23, 2013, http://www.nola.com/traffic/index.ssf/2013/07/gulf_of_mexico_natural_gas_rig.html.

- Carey, Chris. "Small Texas Company Promotes Big South American Oil Venture." Sharesleuth, June 28, 2010. Http://sharesleuth.com/investigations/2010/06/both_of_the_oil_companies.

- Cummings, Jennifer. "UPDATE: Houston American Down; Web Posting Says Co Set for Collapse." Dow Jones News Service, Apr. 7, 2010.

- Cummings, Jennifer. "UPDATE: Houston American Gains on Success of Neighbor's Well." Dow Jones News Service, Feb. 16, 2010.

- "Form 8-K: Houston American Energy Files Current Report." US Fed News, Dec. 21, 2011.

- "Form 8-K: Houston American Energy Files Current Report." US Fed News, Oct. 7, 2011.

- Houston American Energy Corp. "Houston American Energy Announces Termination of Testing and Completion Efforts on Tamandua #1 Well, Plans for Next Well on CPO 4 Block in Colombia and Confirms SEC Investigation." News release, Apr. 19, 2012. *Available at* http://www.houstonamericanenergy.com/prview.html?id=284.

- Houston American Energy Corp. "Houston American Energy Provides Update on the Tamandua #1 Well – Completion Attempt in the C-9 and C-7 Sands." News release, Mar. 1, 2012. *Available at* http://www.houstonamericanenergy.com/prview.html?id=276.

- "Houston American Energy Moves Rig to CPO Four Block Located in Colombia." M2 EquityBites, June 17, 2011.

- "Houston American Energy to Acquire 12.5% Additional Stake in CPO 4 Block." Datamonitor's Financial Deals Tracker, July 31, 2010.

- "Houston sidetracks CPO-4 well on drilling issues." Business News Americas, Oct. 5, 2011.

- "Houston Suspends Drilling on CPO-4 due to Strong Pressure." Business News Americas, Dec. 21, 2011.

- McKnight, Kevin. "Houston American Energy Corp Highlighted in the *Wall Street Journal*." M2 Communications, Feb. 17, 2010.

- McKnight, Kevin. "Houston American Energy Once Again Highlighted in the *Wall Street Journal*; Houston American Energy's Stake in Colombia may Pay Off." *Undiscovered Equities* (blog), Mar. 10, 2010, http://undiscoveredequities.blogspot.com/2010/03/houston-american-energy-once-again.html.

- Shareholders Unite. "Houston American Energy Priced for Perfection." Seeking Alpha, Apr. 7, 2010.

- Shareholder Watchdog. "Houston American Energy Corp. Set Up for Collapse." Seeking Alpha, Apr. 7, 2010.

Other resources

- Ashley, Richard A., and Douglas M. Patterson. "A Test of the GARCH(1,1) Specification for Daily Stock Returns." *Macroeconomic Dynamics* 14 (2010): 137–44.

- Bloomberg LP data.

  □ Houston American Energy Corp. closing price, accessed Sept. 3, 2014.

  □ Standard and Poor's 100 Index historical call implied volatility, historical put implied volatility, and historical volatility (30 day), accessed Sept. 3, 2014.

  □ Standard and Poor's 500 Index closing price, accessed Sept. 3, 2014.

  □ Thomson Reuters/Jefferies CRB Wildcatters Energy E&P Equity Index closing price and historical volatility (30 day), accessed Sept. 3, 2014.

- Bloomberg. "Petrominerales Ltd." Accessed June 11, 2014, http://www.bloomberg.com/quote/PMG:CN.

- Breusch, Trevor S., and Adrian R. Pagan. "A Simple Test for Heteroskedasticity and Random Coefficient Variation." *Econometrica* 47, no. 5 (1979): 1287–94.

- Cook, R. Dennis, and Sanford Weisberg. "Diagnostics for Heteroscedasticity in Regression." *Biometrika* 70, no. 1 (1983): 1–10.

- Corhay, Albert, and A. Tourani Rad. "Conditional Heteroskedasticity Adjusted Market Model and an Event Study." *Quarterly Journal of Economics and Finance* 36, no. 4 (1996): 529–38.

- Damodaran, Aswath. *Damodaran on Valuation*. Hoboken, NJ: Wiley Finance, 2006.

- Hansen, P. Reinhard, and Asger Lunde. "A Comparison of Volatility Models: Does Anything Beat A GARCH(1,1)?" Working Paper Series No. 84, Center for Analytical Finance, University of Aarhus, Mar. 2001.

- *In re Exec. Telecard Ltd. Sec. Litig.*, 979 F.Supp. 1021 (S.D.N.Y. 1997).

- *In re Imperial Credit Indus., Inc. Sec. Litig.*, 2003 WL 1563084 (C.D. Cal. 2003).

- Modernization of Oil and Gas Reporting; Final Rule, 17 C.F.R. pts. 210, 211, 229, and 249 (2009). *Available at* http://www.sec.gov/rules/final/2009/33-8995fr.pdf.

- National Bureau of Economic Research. Business Cycle Dating Committee, Sept. 20, 2010. *Available at* http://www.nber.org/cycles/sept2010.pdf.

- Schlumberger Oilfield Glossary. "Farmout." Accessed Aug. 8, 2014, http://www.glossary.oilfield.slb.com/en/Terms.aspx?LookIn=term%20name&filter=farmout.

- Schlumberger Oilfield Glossary. "Operating Agreement." Accessed Aug. 22, 2014, http://www.glossary.oilfield.slb.com/en/Terms.aspx?LookIn=term%20name&filter=operating+agreement.

- Standard and Poor's Industry Surveys, "Oil & Gas: Production & Marketing," Aug. 27, 2009.

- White, Halbert. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48, no. 4 (1980): 817–38.

- Wooldridge, Jeffrey M. *Introductory Econometrics*. Mason, OH: Thomson Higher Education, 2006.

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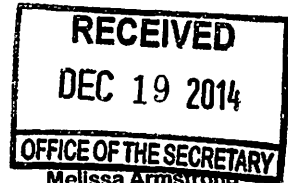
Melissa Armstrong
Assistant Chief Litigation Counsel
Direct Dial: 202-551-4724
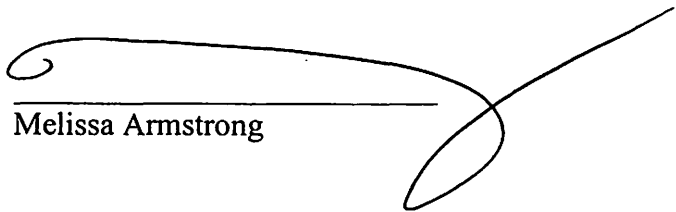
December 19, 2014

VIA Hand Delivery

Commission's Secretary
100 F Street NE
Mail Stop 1090
Washington, DC 20549

Re: Administrative Proceeding, File No. 3-16000; *In the Matter of Houston American Energy Corp., John F. Terwilliger, Jr., Undiscovered Equities, Inc., and Kevin T. McKnight*

Secretary:

On November 21, 2014, the Division of Enforcement of the Securities and Exchange Commission ("Division") filed the Expert Report of Branko Jovanovic in the above-styled case. Two figures in Dr. Jovanovic's report, Figures 5 and 6, contained errors. The Division therefore files this substituted expert report with corrected figures. No other changes have been made to the report.

Melissa Armstrong

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