Testimony of Kevin Book
Senior Vice President, Senior Analyst
Friedman, Billings, Ramsey & Company, Inc.

Before the
House Committee on Agriculture
Subcommittee on Conservation, Credit, Energy and Research

March 7, 2007

Chairman Holden, Ranking Member Lucas and distinguished members of this Committee, thank you for the privilege of participating in this important discussion. The opinions I will share are my own and do not represent the views of my employer, Friedman, Billings, Ramsey & Company, Inc.

My testimony today provides my observations regarding capital markets transactions to finance biofuels production and my assessment of how institutional investors may respond to future opportunities within the sector. As an energy policy analyst who serves Wall Street institutional clients, I evaluate the potential investment impacts of government and regulatory actions for the men and women who manage other people's money. During the more than 18 months since President Bush signed the Energy Policy Act of 2005 (EPAct05) into law, I have met with several hundred asset managers and investment analysts to discuss the domestic and international political contexts surrounding investments in ethanol, biodiesel and second-generation biofuels, including cellulosic ethanol and bio-butanol. Also during that time, I provided analytical support to two ethanol transactions (one late-stage private financing, one initial public offering) and conducted due diligence for several transaction prospects.

The Investment Decision

An investor's charter or institutional mandate may define the class and type of portfolio assets in which he or she might invest. These choices may vary considerably across different firms, funds and asset classes but, whatever the criteria, timeframe or style involved, investors generally allocate the capital entrusted to their care to the highest-

yielding investments on a risk-adjusted basis in the hope of generating returns that outperform designated benchmarks.

Investments in businesses that produce or sell commodities often prosper when those commodities are scarce. This holds true for oil, diesel and motor gasoline and many of the unconventional and renewable alternatives to these fuels. At the same time, the oil and refining industries have historically experienced fairly dramatic corrections following periods of high prices and price spikes, often because high prices can stimulate a combination of demand abatement on the part of customers and overinvestment on the part of producers, and both of these responses can significantly lag the price signals that provoked them. The prospect that a supply glut might show up after price-sensitive customers have already started to conserve is a principal concern of energy investors.

An oil price reduction can affect different investments in different ways. For oil producers that may spend hundreds of millions of dollars (or more) before a field begins producing, falling oil prices are likely to diminish the margins earned above these immense, fixed costs. For refiners that use oil to make gasoline, falling oil prices can actually increase profit margins, provided that demand and industry-wide production capacity remain essentially constant. As a result, investors consider oil price risk very seriously when examining investments in "upstream" and "downstream" segments where cash flows and securities values are a first-order derivative of oil price.

The securities of businesses that profit from second-order scarcity, like the contract drillers that work for oil companies and the renewable fuels producers that sell alternatives to oil-based products, often exhibit even greater volatility in response to crude oil price changes. The high per-gallon cost of producing ethanol from corn can make ethanol a less-attractive economic choice, relative to gasoline or other petrochemicals, for the refiners and blenders who buy it. Even though falling oil prices typically result in lower gasoline prices, corn prices and oil prices are largely uncorrelated and high corn prices may persist even when oil prices decrease.

Institutional Investors and Ethanol

In many ways, the U.S. capital markets are an unlikely mechanism for financing biofuels production. Until EPAct05 created a national renewable fuels standard (RFS), the primary U.S. producers of biofuels – mostly fuel ethanol – fell into two categories: mature, incumbent producers, many of which owned and operated legacy "wet mills" capable of high fructose corn syrup production and decomposition of corn kernels into fiber, oilseeds and germ, which have high-resale-value; and farmer- or farm cooperative-owned facilities that provided a natural way to hedge against corn price volatility because, when corn prices fell, ethanol production became more profitable. The first group of producers could draw upon collateralized credit lines from their commercial lenders, and some producers with diversified business models or greater asset bases had even issued equity and debt securities to finance operations. The second group largely relied upon relationships with rural lenders and trade credit for financing. Until very recently, few new entrants into U.S. ethanol and biofuels production were likely to meet institutional investors' requirements for investment size, production scale, demand stability and projected revenue growth.

Enactment of the RFS provided a stable and growing market for ethanol and biofuels, but several other events helped generate interest in biofuels deals on Wall Street, too. The first of these was the steady rise in crude oil prices since 2002 due to geopolitical instability in Venezuela and Nigeria, supply uncertainties surrounding the Iraq War and the unprecedented escalation of Asian energy demand, among other factors. Second, growth of the global hedge fund asset class over the same period of time meant that more institutional dollars were available to invest in smaller companies and in companies with different risk-return profiles, including new ethanol and biofuels producers. Third, hurricane activity in 2004 and 2005 exacerbated U.S. refinery capacity constraints, rekindling investor interest in alternatives to refined petroleum. Fourth, by the time the RFS went into force on January 1, 2006, more than 25 states had banned, or planned to ban, the use of an octane- and oxygen-enhancing petrochemical compound called methyl tertiary butyl ether (MTBE) in motor gasoline, potentially increasing demand for ethanol as a substitute. Fifth, and not to be discounted, the President's emphasis on domestic

biofuels production for energy security during the 2006 State of the Union speech inspired new enthusiasm among institutional investors.

Even so, investors expressed a number of concerns regarding biofuels investments, too. It may take years for project sponsors to receive regulatory approval for a new oil refinery and years longer to actually build it, but investors worried that the regulatory and practical barriers to entry were so low that the ethanol production might outstrip demand, diminishing investment values. Investors harbored doubts regarding ethanol's suitability as an MTBE replacement given that its water-attracting properties and blending characteristics prevented shipment via pipeline. Some investors wondered how the RFS credit trading mechanism would work, especially whether refiners could meet their national compliance obligations by using another renewable fuel in the place of ethanol. Virtually all investors recognized that ethanol investment profitability could be influenced by a lapse or rescission of two principal legislative constructs, the $0.51/gallon volumetric ethanol excise tax exemption and the $0.54/gallon secondary tariff on fuel ethanol importation, even though neither event seemed an imminent threat.

It is the nature of markets that investors may find opportunity in crisis. By March 2006, the prospect that refiners' impending withdrawal of MTBE from the U.S. gasoline supply might leave the nation short of octane, oxygen and gasoline by midsummer encouraged another wave of investor enthusiasm for biofuels. Shortages of railcar capacity increased this scarcity premium. Although the regional ethanol spot markets represented only a small fraction of domestic production, price spikes to levels 250% above production cost set the stage for several equity offerings on favorable terms for the issuers. Concurrent geopolitical events and domestic supply interruptions associated with Prudhoe Bay pipeline leaks propelled oil prices to new nominal highs, keeping investor enthusiasm for the entire sector at high levels.

By the beginning of the fourth calendar quarter, however, oil prices had fallen and the rationalization of gasoline, ethanol and shipping market dislocations had eroded ethanol's scarcity premium. Listed equity securities of biofuels producers declined substantially

and several would-be issuers delayed and, in some cases, withdrew their public offerings. Construction costs rose, too. Industry contacts have offered anecdotal estimates to suggest that, during the course of 2006, the price of building new ethanol capacity had increased from approximately $130 million to build a 100 million gallon dry mill to as much as $175 million for the same project. Likewise, oil isn't the only commodity that influences biofuels valuations – corn matters, too. The doubling of corn prices during 2006 thinned producers' margins, although the resale of distillers' grains and other byproducts should theoretically dilute the impact of a $1.00/bushel corn price increase to a $0.25/gallon increase in production cost. This year began, however, with corn prices at 10-year highs and oil prices at 20-month lows. Investors considering ethanol producers' securities who had previously set their expectations for $60 oil and $2.50 corn during the next several years may have been somewhat reluctant to add to their positions these securities or to own new issues of biofuels companies after recalibrating their models for $50 oil and $4.00 corn. For traditional, long-term buyers of stocks, depressed securities prices may have presented opportunities. Some of the "faster" money in hedge funds where investment performance is evaluated on a monthly basis probably chose to exit the biofuels sector upon signs of impending weakness.

Looking Ahead

Although it may be a long-term policy goal to decouple the price of biofuels from the price of oil, oil prices remain investors' first consideration today. Continuously rising average oil prices can affect institutional energy investors in different ways. In general, I have encountered more skepticism on Wall Street that oil has "peaked" than I have here in Washington. Although the Energy Information Administration long-term oil prices targets have risen from $33/barrel in the *2005 Annual Energy Outlook* to $54/barrel in the 2006 *Outlook* and $59/barrel in this year's *Outlook*, investors with lower risk tolerances tend to base their investment decisions on lower crude oil price projections. Some investors fear oil prices have been too high for too long and are due for a meaningful correction; these investors are unlikely to favor biofuels investments at current production price points. A smaller proportion of clients cite the durability of high oil prices during a warm winter as evidence that prevailing Asian demand growth and

ongoing OPEC resolve will sustain current levels; these investors tend to be much more enthusiastic about prospects for biofuels investments.

The latter group remains interested in corn ethanol opportunities, particularly given the prospect of an increase of federal renewable fuels requirements. Likewise, corn ethanol production remains below the theoretical capacity constraints imposed by U.S. land availability and farm productivity. On the other hand, high corn prices have led investors with higher risk tolerances to look again at the economic viability of second-generation biofuels derived from cellulosic biomass and, to a limited extent, at biodiesel. Investors have also expressed curiosity about whether new technologies will enable existing ethanol facilities to produce butanol from corn, sugar or sorghum.

Many of these asset managers possess the requisite conviction that coming oil scarcity will create demand for second-generation biofuels. Many are also willing and able to commit capital to the enterprise. However, investors in public securities tend to avoid the "bleeding edge" of untested technologies. It is my view that the vast preponderance of asset managers who invest in the U.S. capital markets will require either a production-scale demonstration of cellulosic technologies or the untoward event of a major and sustained oil supply disruption before they will seriously consider new stock or debt issues to develop second-generation biofuels.

Even though Wall Street may be unlikely to provide favorable financing terms to, and enduring support for, second-generation biofuels investments at their current stage of development, there are nonetheless important roles to be played by government, commercial lenders and early-stage corporate and venture financiers. The stewardship of top venture capitalists encourages healthy interplay between nascent technologies and future markets. Sand Hill Road has clearly identified the opportunity ahead. Likewise, pre-competitive R&D funding may lead the nation's researchers closer to affordable ways to decompose wood pulp, plant waste and "energy crops" into fermentable sugars. On the other hand, the projected capital costs of building cellulosic ethanol plants may be three or four times as much, on a per-gallon basis, as building a dry mill. This highlights

the importance of federal loan guarantees in capitalizing demonstration projects, particularly if these projects operate at lower volumes, because the combination of higher up-front costs and lower volumes means longer payback periods relative to corn ethanol production, potentially increasing the price project sponsors must pay to attract debt or equity investment. Commercial lenders, in partnership with federal guarantors, may play critical roles in helping smaller, corn-based producers to source the capital necessary to retrofit their plants for any second-generation technology that may emerge.

This concludes my prepared testimony. I will look forward to any questions at the appropriate time.

Committee on Agriculture
U.S. House of Representatives
Information Required From Non-governmental Witnesses

House rules require non-governmental witnesses to provide their resume or biographical sketch prior to testifying. If you do not have a resume or biographical sketch available, please complete this form.

1. **Name:** Kevin Book

2. **BusinessAddress:** 1001 19th Street North
Arlington, VA 22209

3. **Business Phone Number:** 703-312-9500

4. **Organization you represent:** Friedman, Billings, Ramsey & Company, Inc.

5. **Please list any occupational, employment, or work-related experience you have which add to your qualification to provide testimony before the Committee:**

   See biography, below

6. **Please list any special training, education, or professional experience you have which add to your qualifications to provide testimony before the Committee:**

   See biography, below

7. **If you are appearing on behalf of an organization, please list the capacity in which you are representing that organization, including any offices or elected positions you hold:**

   See biography, below

PLEASE ATTACH THIS FORM OR YOUR BIOGRAPHY TO EACH COPY OF TESTIMONY.

Kevin Book, Senior Vice President
Friedman, Billings, Ramsey & Co., Inc.
Washington Policy Analysis

FBR Senior Analyst Kevin Book interprets Capitol Hill for Wall Street, evaluating legislative actions, agency rulings, and the U.S. and international political landscape for investment opportunities within the energy sector. He joined the FBR research team in 2003.

Kevin appears often on CNBC, Bloomberg TV, and Marketplace Radio and within print media including Barron's, The New York Times, The Washington Post and Congressional Quarterly. Kevin maintains strong ties with Hill, Administration, and K Street experts and has contributed to policy forums at area think tanks and presented testimony before the U.S. Senate.

Kevin is a D.C. native whose Washington career began as a legislative aide at the Washington office of an international oil and gas law firm. He holds a Master of Arts in law and diplomacy from the Fletcher School of Law and Diplomacy and a B.A. in economics from Tufts University.

Committee on Agriculture
U.S. House of Representatives
Required Witness Disclosure Form

House Rules* require nongovernmental witnesses to disclose the amount and source of Federal grants received since October 1, 2004.

Name: Kevin Book

Address: 1001 19th Street North, Arlington, VA 22209

Telephone: 703-312-9500

Organization you represent (if any): Friedman, Billings, Ramsey & Company, Inc.

1. **Please list any federal grants or contracts (including subgrants and subcontracts) you have received since October 1, 2004, as well as the source and the amount of each grant or contract. House Rules do NOT require disclosure of federal payments to individuals, such as Social Security or Medicare benefits, farm program payments, or assistance to agricultural producers:**

Source: NONE **Amount:** n/a

Source: NONE **Amount:** n/a

2. **If you are appearing on behalf of an organization, please list any federal grants or contracts (including subgrants and subcontracts) the organization has received since October 1, 2004, as well as the source and the amount of each grant or contract:**

Source: NONE **Amount:** n/a

Source: NONE **Amount:** n/a

Please check here if this form is NOT applicable to you: ____

Signature:

* Rule XI, clause 2(g)(4) of the U.S. House of Representatives provides: *Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof. In the case of a witness appearing in a nongovernmental capacity, a written statement of proposed testimony shall include a curriculum vitae and a disclosure of the amount and source (by agency and program) of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) received during the current fiscal year or either of the two previous fiscal years by the witness or by any entity represented by the witness.*

PLEASE ATTACH DISCLOSURE FORM TO EACH COPY OF TESTIMONY.