

## A new approach for regulating information markets

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**Abstract** Information markets are markets for contracts that yield payments based on the outcome of an uncertain future event, such as a presidential election. They have the potential to improve decision making and policies throughout the economy. At the same time, there are regulatory hurdles to establish such markets, largely arising from state prohibitions on Internet gambling. This paper reviews the current regulatory structure for information markets in the United States and offers recommendations for reform. We argue that the authority for regulating many information markets should be shifted from the states to the federal government. In addition, the Commodity Futures Trading Commission should administer an “economic purpose test”. That test would only allow information market contracts that are likely to provide significant financial hedging opportunities or valuable information for improving economic decisions.

**Keywords** Government policy and regulation · Futures pricing

**JEL Classification** G18 · G13

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## 1. Introduction

Information markets are markets for contracts that yield payments based on the outcome of an uncertain future event, such as a presidential election. These markets go by a number of names, including prediction markets, event markets and betting markets. Suppose a contract pays \$1 if Mr. Bush wins the presidential election, and the market price of a Bush contract is currently 53 cents. That means the market “believes” Mr. Bush has a 53% chance of winning the election. This is a simple example of an information market that was pioneered by professors at the University of Iowa in the late 1980s.<sup>1</sup>

Information markets have already been used in a variety of contexts. The most well-known information markets are for small-stakes political contracts. Researchers at Iowa conduct electronic markets for political futures contracts. Hewlett Packard has experimented with information markets to forecast sales and Eli Lilly has used these markets to help predict successful drugs. TradeSports.com offers information contracts in a number of areas including sports, politics, finance, law, entertainment and even the weather. Goldman Sachs supports an over-the-counter (OTC) market called economicderivatives.com, which hosts call auctions for contracts based on economic indices. There are currently more than 23 web sites that offer information market contracts.<sup>2</sup>

Information markets have outperformed experts in a number of settings. For example, Las Vegas odds and point spreads predict the outcomes of sporting events better than sports experts.<sup>3</sup> The prices in Iowa political markets are more accurate than the polls in forecasting elections 451 out of 596 times.<sup>4</sup> Information markets at Hewlett-Packard Labs beat official forecasts of printer sales 15 out of 16 times.<sup>5</sup> Even Hollywood play-money markets perform better than 4 out of 5 columnists in predicting the Oscars.<sup>6</sup>

These markets work for several reasons: first, almost anyone can participate; second, they allow a person to profit from buying contracts that forecast the future—buy the right presidential contract and you win, buy the wrong one and you lose; third, the profit motive encourages people, including speculators, to look for better information all the time. So the market price reflects a lot of information from diverse sources, resulting in what James Surowiecki calls “The Wisdom of Crowds”.<sup>7</sup>

Several scholars have argued that information markets have widespread applications in both the public sector and the private sector. Robin Hanson suggests that governments use information markets to identify whether particular policies will improve national welfare.<sup>8</sup> He also notes how they can be used for betting on the effect of firing a corporation’s chief

<sup>1</sup> See Gorham (2004). See also Iowa Electronic Markets (<http://www.biz.uiowa.edu/iem/about/>).

<sup>2</sup> For a listing of leading information markets, see: <http://www.aei-brookings.org/policyfutures>.

<sup>3</sup> For a comparison of experts, polls and the updated Las Vegas betting line in college and professional football and basketball, see <http://tbeck.freeshell.org/>. For a survey of the efficiency of Las Vegas sports betting markets in general, see Sauer (1998).

<sup>4</sup> See Joyce Berg, Forrest Nelson, Robert Forsythe, and Thomas Rietz (2003).

<sup>5</sup> See Bingham (2003).

<sup>6</sup> Plott (2000), Pennock, Nielsen and Giles (2001), Berg et al. (2003), Hanson (2003), Shiller (2003), Abramowicz (2004), Pethokoukis (2004), Hahn and Tetlock (2004), and Wolfers and Zitzewitz (2004).

<sup>7</sup> Surowiecki (2004).

<sup>8</sup> Hanson (2003), at 14 (“The basic rule of government would be: When an approved betting market clearly estimates that a proposed policy would increase expected GDP+, that proposal becomes law”). Hanson defines GDP+ as a measure of national welfare that incorporates national income and values such as “lifespan, leisure, environmental assets, cultural prowess, and happiness”. Hanson recognizes that GDP may be an imperfect measure, and suggests using other measures as they are developed.

executive on its stock price.<sup>9</sup> Cass Sunstein and James Surowiecki suggest using these markets to improve upon decision-making in small groups.<sup>10</sup> Michael Abramowicz points out ways these markets can improve cost-benefit analysis, and we suggest how information markets can be used to implement more efficient policies.<sup>11</sup>

In 2003, information markets received some unintentional bad publicity when some politicians criticized a proposal to introduce a government-sponsored Policy Analysis Market that could provide information on possible events in the Middle East. These markets, which were supported by a unit in the Department of Defense and some academics, never saw the light of day because of the political firestorm.<sup>12</sup> However, there are private information markets that exist today related to Osama bin Laden's capture and other events of interest.<sup>13</sup>

Information markets are becoming more popular. Despite the demise of the Policy Analysis Market, interest in information markets has grown in recent years. Securities firms such as Goldman Sachs have hosted markets that issue products that are not regulated by the Commodities Futures Trading Commission (CFTC) because of an exemption for over-the-counter markets.<sup>14</sup> In 2004, the CFTC began to regulate contracts listed by HedgeStreet.com, an exchange that allows members to trade information market contracts based on future prices of commodities like gasoline and real estate.<sup>15</sup> The CFTC also regulates weather derivatives, which are information market contracts listed on the Chicago Mercantile Exchange.<sup>16</sup> There is also interest in betting on entertainment events using play money and real money.<sup>17</sup>

The regulation of information markets is likely to have a critical impact on their growth as well as the location of these operations. For example, one possible reason why

<sup>9</sup> Hanson (2003).

<sup>10</sup> See Sunstein (2004) and Surowiecki (2004). They caution against “groupthink”, which suggests that small groups tend toward uniformity and censorship and often fail to use all available information in their decisions.

<sup>11</sup> See Hahn and Tetlock (2004).

<sup>12</sup> See Wallsten (2003).

<sup>13</sup> See Tradesports.com, at <http://www.tradesports.com/jsp/intrade/contractSearch/>. The current bid price, as of Sept. 28, is \$1.81 for a payoff of \$10 if Osama bin Laden is captured by Dec. 31, 2004.

<sup>14</sup> See *infra* §4 for an explanation of over-the-counter markets. The Goldman Sachs Economic Derivatives Market (<http://www.gs.com/econderivs>) makes it possible to buy and sell options on economic data releases such as employment, retail sales, industrial production, inflation, consumer sentiment and economic growth in order to hedge and initiate portfolio risk.

<sup>15</sup> In February 2004, the CFTC allowed HedgeStreet.com to set up information market contracts and claimed regulatory jurisdiction over them, as long as the contracts complied with the Commodity Exchange Act and the Commodity Futures Modernization Act. Acworth (2004). With HedgeStreet, online investors can trade contracts “based on economic risks in their daily lives-like the price of gas, changes in real estate values and the rise or fall of interest rates” HedgeStreet (2004). HedgeStreet’s market lists a wide array of contracts, called “hedgelets,” which are all binary contracts (they pay \$10 if a specific outcome occurs and \$0 if it does not). Anyone can apply to become a member and, if their application is accepted, they must place a minimum of \$500 in their account to be able to begin buying and trading contracts. See [www.hedgestreet.com](http://www.hedgestreet.com). For examples of information market contracts traded on Hedgestreet.com and subject to the CFTC’s oversight, see <http://www.cftc.gov/dea/deacertif.htm>.

<sup>16</sup> Weather derivatives include contracts on temperatures in various cities during particular seasons. For a list of weather derivatives regulated by the CFTC, see the CFTC’s Annual Report 2003. State insurance commissions argue that these weather derivatives should fall under their regulatory jurisdiction instead of the CFTC’s. In a recent white paper, the National Association of Insurance Commissioners (NAIC) maintain that some information market contracts, such as weather derivatives, should be reclassified from capital markets products to insurance products. See National Association of Insurance Commissioners (2003).

<sup>17</sup> See Cherry (2003): “A U.S. government betting pool for future terrorism events is gone, but predictive markets are here to stay.” See Hollywood Stock Exchange, available at [www.hsx.com](http://www.hsx.com). For a website on which one can bet on the popularity of Hollywood celebrities using play money, see Celebdaq on the BBC, available at [bbc.co.uk/celebdaq](http://bbc.co.uk/celebdaq).

TradeSports.com located outside of the United States is because of U.S. laws and regulations that restrict the use of information markets.<sup>18</sup> Currently, there is no clear policy for addressing information markets at the federal level. At the state level, these markets are generally governed by laws and regulations on Internet gambling.

The purpose of this paper is to examine the current regulatory structure for information markets and suggest changes that could enhance efficiency. We make two points: first, the authority for regulating many information markets should be shifted from the states to the federal government. Second, the federal government should have a clear policy on whether certain information markets are allowed. Specifically, we argue that the Commodity Futures Trading Commission should preempt federal and state regulation of certain kinds of information market contracts that can be considered futures contracts,<sup>19</sup> and that these contracts should be regulated as futures contracts—so that the costs of listing certain information market contracts is modest.<sup>20</sup> We also suggest that the Commodity Futures Trading Commission should administer an “economic purpose test” to determine whether specific information market contracts would yield positive social outcomes. We believe that the effect of our proposal would be to enhance the development of information markets that could improve decision making and efficiency throughout the economy.<sup>21</sup>

Section 2 reviews the rationale for regulating gambling. Section 3 reviews current regulations that could apply to information markets. Section 4 presents a proposal for placing the oversight responsibilities for certain kinds of information markets with the Commodities Futures Trading Commission. Section 5 concludes.

## 2. Why regulate information markets?

The economic rationale for regulating information markets is that they are a type of betting market that could have undesirable side effects. In this section, we provide a brief overview of the economic rationale for regulating gambling, and Internet gambling in particular. We find that there are good reasons for regulating gambling, but that many types of information markets should not be construed as gambling.<sup>22</sup> Many scholars suggest that several forms of gambling, including bets via the Internet, should be regulated.<sup>23</sup> They raise concerns about youth gambling, gambling addiction, and the potential of gambling to increase crime. One

<sup>18</sup> See *infra* §3 for a description of the current U.S. regulatory structure, which stifles the creation of information markets in the United States.

<sup>19</sup> See *infra* §4 for an economic definition of a futures contract and legal criteria that the CFTC uses to determine whether a contract is a futures contract and falls within its regulatory jurisdiction. Information market contracts can be defined analogously to index futures already regulated by the CFTC, such as weather futures. For an index futures contract measuring President Bush’s vote share in the 2004 election, the index would be the percentage of the popular vote the President received according to the official Secretary of State records on November 16, 2004. A purchaser of the Bush vote share futures contract would pay the current price of the contract in order to receive the value of the index at the settlement date. This contractual structure is exactly analogous to the structure of weather futures contracts that are allowed by the CFTC.

<sup>20</sup> The CFTC has not yet provided policy guidance for information markets.

<sup>21</sup> For early contributions on the value of information, see Blackwell (1953); Hirshleifer (1971); and Raiffa (1968).

<sup>22</sup> While some information markets, such as wagering on sports outcomes over the Internet, can be considered Internet gambling, other types of information markets serve a useful economic purpose. We argue that such markets should not be lumped together with gambling.

<sup>23</sup> See, for example, Winters, Stinchfield, and Kim (1995), Kezwer (1996), American Academy of Pediatrics (1998), and Shaffer and Hall (2002).

of the concerns about Internet gambling is that it may attract youth. The Internet can be used anonymously, creating a danger that youths can access Internet gambling sites. Young people may be attracted to on-line sports wagering, tournaments and sweepstakes.<sup>24</sup>

A second problem arises from gambling addiction, which is one of the reasons that groups like Gamblers Anonymous have formed.<sup>25</sup> High levels of privacy and easy access offered by Internet gambling may exacerbate problems with pathological gambling.<sup>26</sup> Dr. Howard Shaffer of Harvard Medical School writes, “As smoking crack cocaine changed the cocaine experience, I think electronics is going to change the way gambling is experienced”.<sup>27</sup>

A third problem arises because of concerns with crime. Some concerns have been raised about credit card fraud or general fraud.<sup>28</sup> Other concerns have been raised about organized crime using this vehicle as a way to increase its reach. For example, online casino operators could easily alter or remove their websites at a moment’s notice, and they or other hackers could manipulate software in order to alter the odds of winning. Online gambling could also be used as a means by which to launder money.<sup>29</sup> Those addicted to gambling may be particularly vulnerable to gambling firms that extend credit to people with limited abilities to pay. Gambling addicts may find ways to pay that result in increases in crime, such as theft and robbery. These illegal activities may provide a rationale for government intervention. At this point, there is not much data on the potential size of the problem. There are some data, however, suggesting the size of the Internet gambling market has grown dramatically, from about \$1 billion in 1999 to almost \$6 billion in 2003.<sup>30</sup> In addition, nearly half of online bets are placed by people in the U.S.<sup>31</sup>

Overall, although some forms of gambling may be harmful and costly, many types of information markets will offer benefits that greatly outweigh their costs. Policy makers should attempt to distinguish between information markets that may encourage gambling and those that serve a useful economic purpose.<sup>32</sup>

### 3. The current regulatory structure

The current regulatory structure for information markets is governed, in part, by state laws regulating Internet gambling, as well as federal law. A recent paper by Gorham and Biswall suggests that there are five ways to allow U.S. consumers to participate legally in information markets. One is to obtain a no-action letter from the CFTC, as the Iowa Electronic Markets

<sup>24</sup> See Janower (1996).

<sup>25</sup> Formed in 1957, Gambler’s Anonymous holds support meetings in the U.S. and over 35 other nations. For more information, see <http://www.gamblersanonymous.org/>.

<sup>26</sup> See Saum (1999).

<sup>27</sup> Dr. Howard Shaffer, director of the Harvard Medical School’s Division on Addiction Studies, quoted by Kindt (2001).

<sup>28</sup> See National Gambling Impact Study Commission (1999). See also Mussington, Wilson, and Molander (1998).

<sup>29</sup> See Franklin (2001) and Leach (2000).

<sup>30</sup> According to Christiansen Capital Advisors LLC, the size of the online gambling industry—in terms of annual revenue of online operators—has grown between 1999 and 2003, from \$1.2 billion to \$5.7 billion.

<sup>31</sup> Richtel (2004a).

<sup>32</sup> In practice, there is no simple way to know a person’s motives for trading in a market. Gambling could occur in a large number of markets, including stock markets. For example, the phenomenon of day-trading could be construed as gambling. Our point is that when a market arguably serves a broader economic purpose, there should be a presumption in favor of allowing exchange to occur.

did. A second is to list the product on a futures exchange. A third is to list an excluded product, and have it traded by sophisticated parties. A fourth is to comply with the myriad state regulations on gaming; and a fifth is to set up business offshore, but to allow U.S. customers to participate.<sup>33</sup>

Many states have issued regulations that prohibit Internet gambling. Six states have prohibited it, and at least seven have introduced legislation to prohibit it. Louisiana, Texas, Illinois, Nevada, Oregon, and South Dakota have banned Internet gambling.<sup>34</sup> Other states, such as New Jersey, New York, and California, have introduced legislation to prohibit Internet gambling. In states that have not expressly prohibited Internet gambling, existing state gambling laws could apply. In Utah, for example, Internet gambling would be illegal since all types of gambling are illegal in the state.<sup>35</sup>

Because of difficulties in regulating Internet gambling at the state level, some groups now see the federal government as their only hope for effective regulation. The National Association of State Attorneys General, for example, has asked the federal government to expand its “anti-wagering” statutes to prohibit Internet gambling.<sup>36</sup> The primary federal law governing Internet gambling is the Federal Wire Act of 1961.<sup>37</sup> This law makes it illegal to use “wire communications” to place or assist with placing bets or wagers. Yet, it is ambiguous on several fronts. For example, does “wire communications” include the Internet? Do “sports wagering” and “contests” include all types of gambling on the Internet?<sup>38</sup>

The act also has two major loopholes. First, it applies only to those “engaged in the business of betting or wagering,” and therefore cannot be used to prosecute bettors.<sup>39</sup> Second, the Act does not apply to cases in which Internet gambling is allowed in both the state from which a bet was transmitted and the state in which it was received.<sup>40</sup> Despite the loopholes

<sup>33</sup> See Gorham and Biswall (2005) for an excellent overview of this issue. As noted below, setting up business offshore could be a problem if, say, the Justice Department determines the entity is violating the Federal Wire Act.

<sup>34</sup> Illinois, for example, “prohibits any individual or financial institution from making a wire transfer of money for internet-based gambling” and voids all “credit card debts that result from internet-based gambling.” See Ill. Compiled Statutes 720 ILCS 5/28-2. Louisiana fines internet gambling businesses “no more than \$20,000” and bettors “no more than \$500.” See 1997 La. Act 1467 S.4. See also S. 318, Reg. Sess. (Nev. 1997). S. 1222, 76th Leg. Reg. Sees. (Texas, 1999).

<sup>35</sup> See Utah Constitution, Article VI, Legislative Dept. S 27: “The Legislature shall not authorize any game of chance, lottery, or gift enterprises under any pretense or for any purpose.”

<sup>36</sup> Florida Attorney General Butterworth wrote his congressman, Steven Gellar: “State law prohibits an individual in Florida from placing a bet or wager by wire communication or by use of the Internet and the difficulty in adopting and implementing durable and effective enforcement mechanisms, makes any effort to regulate the Internet’s use better suited to federal legislation, rather than a patchwork attempt by individual states” (United States Senate Republican Policy Committee 2003).

<sup>37</sup> The Federal Wire Act states that: “Whoever being engaged in the business of betting or wagering knowingly uses a wire communication facility for the transmission in interstate or foreign commerce of bets or wagers or information assisting in the placing of bets or wagers on any sporting event or contest, or for the transmission of a wire communication which entitles the recipient to receive money or credit as a result of bets or wagers, or for information assisting in the placing of bets or wagers, shall be fined under this title or imprisoned not more than 2 years, or both”. See 18 U.S.C § 1084.

<sup>38</sup> See 18 U.S.C § 1084.

<sup>39</sup> See 18 U.S.C § 1084.

<sup>40</sup> See 18 U.S.C § 1084: “Nothing in this section shall be construed to prevent the transmission in interstate or foreign commerce of information for use in news reporting of sporting events or contests, or for the transmission of information assisting in the placing of bets or wagers on a sporting event or contest from a State or foreign country where betting on that sporting event or contest is legal into a State or foreign country in which such betting is legal.”

and ambiguities in the federal law, the Department of Justice has investigated and brought charges against at least 20 Internet gambling operators on charges of violating the Federal Wire Act.<sup>41</sup> Although all the defendants operated their businesses offshore and maintained that they were licensed by foreign governments, they were U.S. citizens at the time of their arrests and subject to U.S. law.

There are currently efforts in Congress to strengthen Federal regulation and prohibit Internet gambling nationally. In March 2003, Senators Kyl, Shelby, and Feinstein introduced the Unlawful Internet Gambling Funding Prohibition Act, which would prohibit banks and other financial institutions from processing Internet gambling transactions.<sup>42</sup> Since the introduction of this act, much Internet gambling activity has moved overseas and offshore.<sup>43</sup>

The Department of Justice has taken note of the move overseas, and is beginning to address international Internet gambling. Since 2003, the DOJ has been investigating American companies that provide services to offshore gambling sites. Federal prosecutors have pressured American companies to stop providing these services. For example, Google, Yahoo, and Lycos stopped advertising online gambling sites in April 2004 after significant pressure from federal prosecutors.<sup>44</sup> Furthermore, many American credit card companies—including Citigroup Inc., as of 2002—no longer allow credit cards they issue to be used for Internet betting.<sup>45</sup> There are also cases in which the U.S. government has seized money from companies for “aiding and abetting” online gambling operators.<sup>46</sup>

In July 2003, Antigua and Barbuda, a Caribbean island nation with a population of only 68,000, took a dispute to the World Trade Organization condemning U.S. restrictions on online gambling. U.S. representatives responded by saying: “These services (online gambling) present psychological dangers to some segments of society, as well as create serious social problems and law enforcement difficulties.”<sup>47</sup> On March 24, 2004, the WTO issued a decision that the U.S. prohibition on Internet gambling is in violation of U.S. free trade obligations.<sup>48</sup> The response of the U.S. Trade Representative’s office was resolute: “We intend to appeal and will argue vigorously that this deeply flawed panel report must be corrected by the appellate body.”<sup>49</sup>

In general, both federal and state laws do not appear to have been very effective at curbing gambling. One of the problems is that Internet gambling crosses state and national

<sup>41</sup> One recent prosecution involved Jay Cohen Feb. 8, 2000: Jay Cohen was convicted of violating the Wire Wage Act by operating an offshore Antigua-based sports betting business (World Sports Exchange) that illegally accepted bets and wagers from Americans over the Internet and telephones. He was the first defendant to stand trial in a series of Internet offshore gambling cases that were the first prosecutions brought under the Wire Act. Ten defendants had previously pled guilty. Cohen was sentenced to 21 months in prison, followed by 2 years of supervised release, and was assessed nearly \$6,000 in fines. See Department of Justice (2000).

<sup>42</sup> See United States Senate Republican Policy Committee (2003).

<sup>43</sup> In many other countries, online gambling is unambiguously legal (for example, in Great Britain, Ireland, Costa Rica, Antigua and Barbuda, Belize, and Australia). Furthermore, American operators of overseas online casinos “could face arrest if they entered the United States” Richtel (2004a).

<sup>44</sup> See, for example, Richtel (2004a) and Richtel (2004b).

<sup>45</sup> Giles (2004).

<sup>46</sup> For example, PayPal—an online payment service—had to forfeit \$10 million in 2003 for processing gambling transactions. See McCullagh (2003).

<sup>47</sup> Giles (2004).

<sup>48</sup> Richtel (2004b) and Giles (2004).

<sup>49</sup> CBS News.com (2004).

boundaries.<sup>50</sup> To the extent that these laws are effective, however, they impede the development of information markets that have the potential to yield significant benefits for society.

#### 4. A proposal for regulating information markets

There are many possibilities for regulating information markets. These include the status quo, using contract law at the state level, and having the CFTC play a larger role. The status quo is a patchwork quilt of regulation and law that is likely to discourage the emergence of useful information markets. We think contract law is problematic because unregulated securities markets may experience more serious adverse selection and information asymmetry problems.<sup>51</sup> We think it is reasonable for the CFTC to provide exemptions for selected markets, and for the agency to specify information market contracts that would fall under its jurisdiction. We believe that the latter two options are superior to the *status quo*, or relying on the law of contracts.<sup>52</sup> As an alternative, we suggest an approach to regulating information market contracts consisting of four parts: the CFTC should be the primary agency with regulatory jurisdiction over information market contracts;<sup>53</sup> there should be a requirement that all information market contracts under CFTC jurisdiction pass an economic purpose test; regulation and law should grant exemptions for appropriate categories of information market contracts; and regulation should rely primarily on self-certification of contracts.

We think the CFTC should be the primary agency involved in regulating information market contracts for a number of reasons.<sup>54</sup> First, it is already charged with regulating futures and options contracts, and information market contracts could be thought of as a type of futures contract.<sup>55</sup> A futures contract is an agreement to buy or sell a product at a pre-specified price

<sup>50</sup> See National Gambling Impact Study Commission Final Report (1999). (“The large majority of Internet gambling sites, along with their owners and operators, are beyond the reach of the state attorneys general. The difficulty state governments face in regulating or prohibiting Internet gambling has been made clear in disputes regarding sites owned by Native American tribal governments... Currently, governments in 25 countries license or have passed legislation to permit Internet gambling operations. To effectively prohibit Internet gambling, the U.S. government would have to ensure that these licensed operators do not offer their services within U.S. borders, a proposition that poses a range of unanswered questions regarding feasibility”.)

<sup>51</sup> On adverse selection, see Glosten and Milgrom (1985). For a view that supports contract law, see Bell (2002). For an insightful analysis of security market regulation, see Black (2001).

<sup>52</sup> We also believe that some regulation is needed now, particularly if certain information markets have harmful social side effects similar to those associated with gambling. Absent such side effects, the case for regulation is considerably weakened, though there still may be a role for regulating information markets as futures markets, which fall under the purview of the CFTC. We are sensitive to concerns, however, that the CFTC may regulate in ways that are not socially optimal. Nonetheless, we believe that such regulation, particularly if done with a light touch, is preferable to the current patchwork quilt of state and federal regulation that confronts firms now, and which we believe is highly inefficient. We also believe that there may be merits to allowing states to experiment. For a discussion of some of the general trade-offs involved see Inman and Rubinfeld (1997).

<sup>53</sup> We suggest the CFTC, as opposed to another federal agency, because the CFTC is already regulating some information market contracts. Moreover, in terms of its legislative mandate to regulate futures contracts, the agency appears to be the most appropriate fit. Another possibility at the federal level is the Securities and Exchange Commission. We do not think a separate regulatory agency is needed to address this issue.

<sup>54</sup> We believe this is within the CFTC’s power based on discussions with CFTC lawyers and Michael Gorman. We recognize, however, there may be differences of opinion here. At the same time, it can be argued that administrative agencies have quite a bit of discretion under the *Chevron* doctrine, which is especially relevant when older legal language is applied to new situations or technologies that may not have been contemplated in the statute.

<sup>55</sup> See Commodity Futures Trading Commission, *About the Commodity Futures Trading Commission*, available at <http://www.cftc.gov/cftc/cftcabout.htm>. Alternatively, some information markets could be categorized



for delivery at some point in the future.<sup>56</sup> It could be a contract that pays \$  $x$  if the value of the Dow Jones Index is  $x$  points, or a contract that pays \$  $x$  if President Bush wins  $x\%$  of the popular vote in the 2004 election. In our opinion, virtually all information market contracts are futures contracts, at least using a standard economic definition of such contracts.

Second, the CFTC has expertise in regulating such markets.<sup>57</sup> The CFTC already regulates a number of contracts that we would call information market contracts. As recently as February of 2004, the CFTC designated HedgeStreet as a futures contract market that complies with the Commodity Exchange Act.<sup>58</sup> HedgeStreet enables online trading of economic events and indices relevant to everyday life, including currencies, commodities, interest rates, inflation, mortgage rates, and employment.<sup>59</sup> Weather derivative contracts on temperatures in various cities are another example of information markets that the CFTC regulates.<sup>60</sup>

Third, it appears that several information market contracts would satisfy the legal criteria that the CFTC applies to a futures contract, and thus, these contracts could fall under the CFTC's jurisdiction. Indeed, most of the information market contracts that pass an economic purpose test would comply with the statutes governing futures contracts and satisfy various CFTC guidelines for determining CFTC jurisdiction.<sup>61</sup>

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as binary or regular options contracts, both of which are regulated by the CFTC. An example of a binary contract is a contract that yields a fixed payment only if the price of gasoline is less than \$1.90 per gallon on a future date. This contract is currently traded on HedgeStreet.

<sup>56</sup> For an economic definition of a futures contract, see Sharpe (1985) ("Whenever something is ordered instead of purchased on the spot, a forward or future contract is involved. The price is decided at the time the order is placed, but the cash is exchanged for merchandise later... *Futures contracts (futures for short)* provide a standardized means of engaging in such transactions for agricultural and other commodities and for financial instruments and stock indices".)

<sup>57</sup> In 2003, the CFTC was had a budget of \$85.4 million and 526 full-time employees to support three strategic goals: (1) protect the economic functions of the commodity futures and options markets; (2) protect market users and the public; (3) foster open, competitive, and financially sound markets. See Commodity Futures Trading Commission, *FY 2003 Annual Performance Report*, available at <http://www.cftc.gov/cftc/cftcreports.htm>. In 2004, the CFTC was appropriated \$89.9 million to support these three goals. See Commodity Futures Trading Commission, *FY 2005 President's Budget and Performance Plan*, available at <http://www.cftc.gov/files/ofm/ofm2005pb.pdf>.

<sup>58</sup> The HedgeStreet application is available on the CFTC website at [http://www.cftc.gov/dea/deadcms\\_table.htm](http://www.cftc.gov/dea/deadcms_table.htm). The Division of Market Oversight at the CFTC determined that HedgeStreet's application demonstrated compliance with the designation criteria of Section 5(b) of the Commodity Exchange Act ("Act"), the core principles of Section 5(d) of the Act, and the common provisions of Section 5c(b) of the Act regarding designation of contract markets. See also "Street Sleuth: Firm Offers Hedging on a Small Scale," *Wall Street Journal*, Oct. 22, 2004.

<sup>59</sup> See [www.hedgestreet.com](http://www.hedgestreet.com). See also The Iowa Electronic Markets, available at <http://www.biz.uiowa.edu/iem/>, which received a no-action letter from the CFTC, meaning that the CFTC office or division issuing the letter would not recommend enforcement action against the market.

<sup>60</sup> For a list of weather derivatives regulated by the CFTC, see the CFTC's Annual Report 2003.

<sup>61</sup> See CFTC Guideline No. 1, *Interpretive Statement Regarding Economic and Public Interest Requirements for Listing Contracts*: ("A board of trade shall submit: A demonstration that the terms and conditions, as a whole, will result in a deliverable supply such that the contract will not be conducive to price manipulation or distortion and that the deliverable supply reasonably can be expected to be available to short traders and salable by long traders at its market value in normal cash marketing channels". (4)...additional evidence, information or data relating to whether the contract meets, initially or on a continuing basis, any of the specific requirements of the Act, including the public interest standard contained in Section 5(7) of the Act and whether the contract reasonably can be expected to be, or has been, used for hedging and/or price basing on more than an occasional basis".) Under the CFTC's criteria, it appears that many information markets would be futures contracts.

A basic problem arises in regulation because Congress did not intend for the CFTC to be a gaming or gambling commission.<sup>62</sup> Thus, Congress or the agency needs to distinguish between information market contracts with a broad economic purpose and gambling.<sup>63</sup> We suggest using an “economic purpose test”, which the CFTC could administer to determine whether an information market contract would yield positive social outcomes. To pass our economic purpose test, an information contract would need to satisfy at least one of two criteria. The *first criterion* is that the information market contract is likely to provide significant financial hedging opportunities; and the *second criterion* is that the prevailing price of the information market contract is likely to provide valuable information for improving economic decisions.<sup>64</sup> Our proposed economic purpose test would require that an information market contract be used for financial hedging, or have some reasonable chance of improving economic decision making, or both.<sup>65</sup> The first criterion mirrors the hedging requirement in the Commodity and Futures Modernization Act. The second criterion is a logical extension of the price discovery and price information requirements. These requirements are designed to aid in planning and risk management.

Farming provides a good example of how information markets could serve similar functions to traditional textbook futures markets. Just as farmers would like to know the price of wheat in advance of the harvest, they would also like to know the likelihood that bad weather will endanger their yields. Similarly, farmers that want to hedge against the risk that lower wheat prices will reduce their profits may also want to hedge against the risk that bad weather will decrease profits.

The CFTC will not always find it easy to determine whether an information market contract satisfies our economic purpose test. In the beginning, the CFTC may need to evaluate information market contracts on a case-by-case basis. Over time, it should be able to provide guidance on general categories of contracts that are acceptable. Table 1 reviews some standard categories of contracts from TradeSports.com, and provides our assessment of whether the CFTC should regulate them as futures contracts.

In general, we would suggest that information market contracts for sporting events, such as selecting the winner of a baseball game, should not be subject to CFTC oversight. For legal purposes, these contracts should be considered gambling. At the same time, some sports information markets could be quite useful. For example, Washington, D.C. is considering whether to host a baseball team and build a new stadium. An information market related to the economic impact of this stadium could provide very useful economic information for local business people. The first criterion in the article emphasizes financial hedging opportunities to distinguish information market contracts from sports contracts that may provide

<sup>62</sup> The futures industry has historically attempted to distinguish the contracts they offer from pure gambling. The industry maintains that its contracts serve a valuable economic purpose, such as hedging. See Futures Industry Association (2004).

<sup>63</sup> For a discussion of the difference between futures markets and gambling, see Commodity Futures Trading Commission (2004): “Many people think that futures markets are just about speculating or ‘gambling’. While it is true that futures markets can be used for speculating, that is not the primary reason for their existence. Futures markets are actually designed as vehicles for hedging and risk management, that is, to help people avoid ‘gambling’ when they don’t want to.”

<sup>64</sup> Here, we interpret economic decisions broadly to include both efficiency and equity decisions.

<sup>65</sup> We would not require an exchange to guarantee a liquid market for contracts. Instead, we would allow private exchanges and private agents to make decisions about which markets would be liquid. Although the CFTC could regulate the degree of liquidity provided, this would be a departure from the current norms regarding regulation of futures contracts. Furthermore, such a regulation would only make economic sense if there were some significant externality associated with having thinly traded contracts listed on the exchanges.

**Table 1** Some typical contract categories listed on Tradesports.com as of 2004

Contract type	Examples	CFTC Jurisdiction	Satisfies economic purpose test
Sporting events	Winner of basketball, football, baseball, boxing, football, golf, soccer, or horseracing contests	No	This type of sports betting does not usually satisfy either criterion.
Current events	2012 Olympic Host Homeland Security US Middle East International Events, such as bin Laden's capture	Yes	Examples related to homeland security alert or hosting of Olympics could help improve economic and policy decisions.
Financial	Economic Numbers Indices Commodities Currencies	Yes	These contracts satisfy both criteria.
Legal	Supreme Court Michael Jackson Trial	Depends	Celebrity trials probably do not satisfy either criterion; Predicting which Supreme Court Justice will leave the bench probably satisfies the second criterion.
Politics	US Senate Races US Presidential Election	Yes	Key political outcomes probably satisfy both criteria.

Source: Authors and Tradesports.com (last visited 10/5/04)  
 Note: See text for the two criteria in our economic purpose test.

purely psychological hedging opportunities—e.g., betting against one’s favorite team. Defining information market contracts based on objective financial criteria reduces the need for conceptually difficult judgments. The CFTC currently administers a kind of public-interest test similar to the economic purpose test to determine whether futures contracts fall under its jurisdiction and are acceptable.<sup>66</sup> The Commodity and Futures Modernization Act requires that a contract be used for hedging, price discovery, or dissemination of pricing information.

If the CFTC finds that an information market contract is a futures contract as defined in the Commodity Exchange Act and satisfies the economic purpose test, then it could preempt other state and federal regulatory authorities.<sup>67</sup> By reducing uncertainty, we believe that such preemption would help stimulate innovation in information markets.

A key feature of our regulatory approach is to allow for broad exemptions. Where traders are likely to be well-informed, there is little reason to regulate information market contracts. This is probably true, for example, in markets where the minimum amount to participate in the market is significant, and where only large institutions or high net-worth individuals can trade.<sup>68</sup> We would suggest exempting such markets from regulation, provided that the contracts traded in those markets pass an economic purpose test.<sup>69</sup>

Another possible exemption that we would recommend is for over-the-counter information markets. One example is *economicderivatives.com*, which is run by Goldman Sachs.<sup>70</sup> Trades in over-the-counter contracts do not occur on exchanges and are exempt from CFTC regulation.<sup>71</sup>

<sup>66</sup> The Commodity and Futures Modernization Act amended the Commodity Exchange Act, Section 5(7) to read: “Sec. 108: Protection of the Public Interest... (a) Findings.—The transactions subject to this Act are entered into regularly in interstate and international commerce and are affected with a national public interest by providing a means for managing and assuming price risks, discovering prices, or disseminating pricing information through trading in liquid, fair, and financially secure trading facilities. (b) Purpose. —It is the purpose of this Act to serve the public interests described in subsection (a) through a system of self-regulation of trading facilities, clearing systems, market participants and market professionals under the oversight of the Commission. To foster these public interests, it is further the purpose of this Act to deter and prevent price manipulation or any other disruptions to market integrity”. See also CFTC Guidelines, Appendix A to Part 40, CFTC Guideline No. 1 (The CFTC requires that the board of trade submit the following: “(4)...additional evidence, information or data relating to whether the contract meets, initially or on a continuing basis, any of the specific requirements of the Act, including the public interest standard contained in Section 5(7) of the Act and whether the contract reasonably can be expected to be, or has been, used for hedging and/or price basing on more than an occasional basis”).

<sup>67</sup> See Sec. 117, (e)2A of Commodity Exchange Act, “Preemption”: “This Act shall supersede and preempt the application of any State or local law that prohibits or regulates gaming or the operation of bucket shops (other than antifraud provisions of general application) in the case of—(A) an electronic trading facility excluded under section 2(e) of the Act. See also Sec. 210 (28) (2) of the Commodity Exchange Act, “Preemption of State Laws,” stating: “No provision of State law regarding the offer, sale, or distribution of securities shall apply to any transaction in a securities futures product...” If a contract fails the economic purpose test, then it would need to deal with the state gaming commissions.

<sup>68</sup> For criteria allowing a board of trade to operate as an exempt board of trade, see Commodity Exchange Act, §5 (d): Exempt Boards of Trade. One of the criteria is that only “eligible contract participants” can enter into a contract. “Eligible contract participants” include large institutions or high net-worth individuals. For a definition of “eligible contract participant,” see Commodity Exchange Act, §1(a)(12).

<sup>69</sup> The public interest standards in the statute and CFTC guidelines do not appear to apply to exemptions. We think that it is also reasonable to have an economic purpose test for exemptions.

<sup>70</sup> See the Goldman Sachs Economic Derivatives Market (<http://www.gs.com/econderivs>). This market is over-the-counter, which means that it does not trade on a formal exchange. The Commodity Futures Modernization Act of 2000 exempts all OTC derivatives from CFTC regulation.

<sup>71</sup> See Commodity Futures Modernization Act of 2000. For a definition of over-the-counter markets, see the CFTC Glossary, available at [http://www.cftc.gov/opa/glossary/opaglossary\\_o.htm#overthecounter](http://www.cftc.gov/opa/glossary/opaglossary_o.htm#overthecounter) (“The trading of commodities, contracts, or other instruments not listed on any exchange. OTC transactions can

A third possible exemption that the CFTC may want to allow is for markets that limit the size of investments, as in the Iowa Electronic Markets.<sup>72</sup> There, starting accounts require a minimum of \$5 and a maximum of \$500 per participant.<sup>73</sup> The CFTC market may also want to provide exemptions for contracts whose overall volume or revenues does not exceed a certain amount. Such exemptions would allow exchanges, such as the one in Iowa, to experiment freely with new contract designs without risking serious economic harm to market participants.<sup>74</sup> Finally, if an information market contract passes the economic purpose test, but is not exempt, the CFTC should regulate it as a futures contract. Currently, exchanges are allowed to self-certify futures contracts, meaning that an exchange does not have to get the CFTC's approval before listing a contract.<sup>75</sup> The terms of regulation should not be any more onerous than other comparable instruments, such as futures contracts. Thus, firms should be allowed to self-certify information market contracts. Keeping the costs of regulation low will promote innovation. If firms wish to gain formal CFTC approval for their information market contracts, they should be allowed to do so.<sup>76</sup>

We would also suggest that information markets that are susceptible to manipulation by a small number of people should not be regulated as futures contracts by the CFTC.<sup>77</sup> The presence of a few manipulated information markets could damage the credibility of all information markets similar to the presence of insider trading activity. Moreover, it is unclear that the prices in thin, manipulated markets would produce useful information or allow significant financial hedging opportunities. Until further research establishes the benefits of markets susceptible to manipulation, it does not make sense to regulate them as futures contracts.<sup>78</sup> Occurrences that cannot be or are unlikely to be influenced by human intervention, such as the weather or CPI, are less susceptible to manipulation. Sporting event contracts, however, are more susceptible to manipulation.

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occur electronically or over the telephone"). See also William Sharpe, *Investments* (3rd ed.): "Most bonds are sold over-the-counter, as are mutual funds, many bank and finance stocks, and the securities of small (and some not-so-small) companies". See the Commodity Futures Modernization Act of 2000 Chap. 2, Sect. 408 (2)(c), which exempts over-the-counter markets from CFTC regulation.

<sup>72</sup> Markets, such as those for sporting event outcomes, that do not meet the information market criteria outlined above would not qualify for this exemption.

<sup>73</sup> Glasner (2002).

<sup>74</sup> Another alternative might be to allow exemptions for research by academics at not-for-profit institutions, such as was done in the case of the Iowa Electronic Market. We would prefer to have an exemption that is broader than this, such as one that puts limits on the amount of money that can be spent by an individual. That way, people who are interested in doing research or experimenting in the for-profit world could do so.

<sup>75</sup> The overwhelming majority of all contracts now regulated by the CFTC are self-certified. However, the CFTC can file a lawsuit against an exchange that lists a contract that violates the Commodity Exchange Act. See Commodity Futures Modernization Act of 2000, Sec. 5c(c), *New Contracts, New Rules, and Rule Amendments* for the self-certification clause: "...a registered entity may elect to list for trading or accept for clearing any new contract or other instrument, or may elect to approve and implement any new rule or rule amendment, by providing to the Commission...a written certification that the new contract or instrument or clearing of the new contract or instrument, new rule, or rule amendment complies with this Act (including regulations under this Act)."

<sup>76</sup> See Code of Federal Regulations, Chapter 1 – Commodity and Futures Trading Commission, Part 40, §40.3: "Voluntary submission of new products for Commission review and approval": "(a) Request for approval. A designated contract market or registered derivatives transaction execution facility may request under section 5c(c)(2) of the Act that the Commission approve new products..."

<sup>77</sup> Critics of the Policy Analysis Market in terrorism futures argued that a small group of terrorists could determine the outcome of the information market, and thus profit financially.

<sup>78</sup> A number of authors have suggested that information markets be considered in small groups. See, e.g., Cass Sunstein, "Deliberation and Information Markets," in Hahn and Tetlock, eds. (2005, forthcoming). See also Surowiecki (2004).

The same type of insider trading rules for stock options and futures contracts should also apply to information market contracts. Currently, futures contracts susceptible to manipulation and insider trading are jointly regulated by the CFTC and the SEC. The CFTC regulates futures contracts that are based on broad-based indices, such as unemployment, interest rates, and the price of corn.<sup>79</sup> The SEC and CFTC jointly regulate futures contracts that are based on a single-stock or narrow-based index.<sup>80</sup> We support the same types of restrictions on insider dealings in information markets. We suggest that the SEC also help the CFTC with policing information markets, just as it helps with the regulation of narrow-based security futures contracts.

There could be an exemption from insider trading restrictions for markets internal to an organization (such as a firm), especially markets that only use money granted by the organization to its members. For markets in which both insiders and outsiders participate, normal insider trading laws would apply for the same reasons that securities markets have these laws. Although it is an interesting question whether any securities market should have insider trading restrictions, this question lies beyond the scope of our paper. If our proposed regulatory fix for information markets were not viewed as legal, Congress could provide more explicit guidance on the type of markets it wants the CFTC to regulate.<sup>81</sup> We do not think this guidance is necessary for information markets, but we are not legal experts.<sup>82</sup> If our regulatory proposal were implemented, then the CFTC would have additional responsibilities. Accordingly, Congress may want to consider increasing the CFTC budget to cover the additional costs of administration and enforcement.

The taxonomy we offer for the CFTC to claim jurisdiction over an information market contract is designed with two features in mind: first, to avoid having the CFTC regulate those contracts that are akin to gambling and serve no economic purpose; and second, to encourage the development of information markets that could be economically beneficial.

<sup>79</sup> See CFTC Guideline 1.59 (b)(1)(i): “Each self-regulatory organization must maintain in effect rules which have been submitted to the Commission pursuant to Section 5a(a)(12)(A) of the Act...that at a minimum, prohibit: (i) Employees of the self-regulatory organization from: (A) Trading, directly or indirectly, in any commodity interest traded on or cleared by the employing contract market or clearing organization.”

<sup>80</sup> See the Commodity Exchange Act, §2 (D)(i): “Notwithstanding any other provision of this Act, the Securities and Exchange Commission shall have jurisdiction and authority over security futures...(I) Except as otherwise provided in a rule, regulation, or order...any security underlying the security future, including each component security of a narrow-based security index, is registered pursuant to section 12 of the Securities Exchange Act of 1934.” For the statute that addresses jurisdiction over insider trading, see the Commodity Exchange Act §2 (D)(i) (VII): “The board of trade on which the security futures product is traded has procedures in place for coordinated surveillance among such board of trade, any market on which any security underlying the securities futures product is traded, and any other markets on which any related security is traded to detect manipulation and insider trading, except that, if the board of trade is an alternative trading system, a national securities association registered pursuant to section 15A(a) of the Securities Exchange Act of 1934 or national securities exchange registered pursuant to section 6(a) of the Securities Exchange Act of 1934 of which such alternative trading system is a member has in place such procedures.”

<sup>81</sup> In 1974, Congress amended the Commodity Exchange Act by expanding the definition of a futures contract to encompass virtually any commodity, tangible or intangible. See Commodity Exchange Act, Sec. 1a [7 U.S.C. 1a] Definitions, (4): (“The term ‘commodity’ means wheat, cotton, rice, corn, oats, barley, rye...and all services, rights, and interests in which contracts for future delivery are presently or in the future dealt with”.) See also United States General Accounting Office (1997), at 5 (“The list of specified commodities was expanded to include “all goods and articles...and all services, rights, and interests in which contracts for future delivery are presently or in the future dealt with”.)

<sup>82</sup> For example, Congress could define the word “commodity” in such a way as to include certain kinds of commodities that would serve as useful information markets. Examples might include weather and economic indicators.

Even if there are some social costs attached to information market contracts that the CFTC regulates, we believe there are likely to be considerable offsetting benefits. These include improvements in public policy, hedging against risk, and economic decisions that result from the increased use of information markets. Unlike information markets, Internet gambling does not have these social benefits.

While it is difficult to quantify the potential benefits of introducing information markets more rapidly, there are number of ways this might be accomplished. First, one could have an information market related to the economic impact of a potential change in CFTC policy, for example on the volume of trading in information markets. One could also measure the dollar trading volume in information markets before and after regulation.

Unfortunately, volume is an imperfect proxy for the benefits from hedging because some traders will undoubtedly trade for speculative reasons. A better measure of hedging benefits would involve directly estimating the impact of individuals' portfolios of information market contracts on the variance in their overall incomes.<sup>83</sup> Survey data could be used to assess the magnitude of this hedging benefit.<sup>84</sup>

There would also be benefits from the information provided by the prices in information markets. These would include improved economic and policy decisions, but would be harder to measure. One statistical test could examine the average economic benefits from policy decisions before and after information markets were introduced. An alternative test could compare the economic benefits from policy decisions relying heavily on information market prices to the benefits from decisions that did not rely on information market prices.

We believe the benefits of our proposal are likely to outweigh the costs for three reasons. First, the proposal is designed to facilitate the introduction of information markets that improve economic decision making, and thus result in significant economic benefits. Second, there may be modest cost savings associated with having a single federal regulatory agency oversee regulation of economically important information markets, rather than the current system in which many state regulators are involved. Finally, we believe the costs of our proposal, in terms of increased gambling, are likely to be small.<sup>85</sup>

## 5. Conclusion

Information markets have a great deal of potential to inform private and public decisions. Whether this potential is realized will depend in part on the regulatory environment in which these markets operate. Currently there are a number of laws and regulations in the United States that discourage the emergence of potentially useful information markets. These markets are now subject to the same Internet gambling laws that are used to regulate Internet card games. We think this situation needs to be rectified. The federal government should

<sup>83</sup> See Athanasoulis, Shiller, and Wincoop (1999). ("Shiller and Schneider (1998), using 1968–1987 U.S. data from the Panel Study of Income Dynamics, estimate the variance of income changes that are not under the control of individuals...The results show that between half and three-quarters of the variance of five-year income changes can be explained by the aggregate indexes. Most of people's income risk could therefore be managed through macro markets, assuming that they were opened not just on national incomes but, within that, on occupational incomes.") See, e.g., Shiller and Schneider (1998). See also Athanasoulis and Shiller (2001).

<sup>84</sup> For example, one could use the University of Michigan's Panel Study of Income Dynamics.

<sup>85</sup> Consumers who suffer from gambling addictions already have a large number of ways to gamble. We doubt that adding the kind of information markets discussed here would add substantially to the externalities associated with gambling.

implement a clear policy that allows information markets that serve a useful economic purpose. In our view, the CFTC can, and should, do this now. If not, Congress should change the law to allow the CFTC to regulate such contracts.

We have offered a modest regulatory proposal that would place the primary responsibility for regulating economically useful information markets with the CFTC. The proposal would require a demonstration that specific information contracts be likely to provide financial hedging opportunities or useful information for improving economic decisions. Our proposal provides a clear policy for regulating information market contracts that could have desirable economic characteristics. Moreover, our proposal is also designed to exclude contracts that could have negative consequences, such as sports betting. We think the modest potential downside risk associated with our proposal is more than offset by the potential gains that could result from more widespread use of information markets.

## References

- Abramowicz, M. (2004). Information markets, administrative decision-making, and predictive cost-benefit analysis. *University of Chicago Law Review*, 71, 933–1015.
- Acworth, W. (2004). CFTC approves HedgeStreet Exchange. *Futures Industry Magazine*, March/April.
- American Academy of Pediatrics. (1998). Teen Gambling Epidemic Linked to Risky Behavior. August.
- Athanasoulis, S., & Shiller, R. (2001). World Income Components: Measuring and Exploiting Risk-Sharing Opportunities. 91 *American Economic Review*, 4, 1031–1054, September.
- Athanasoulis, S., Shiller, R., & van Wincoop, E. (1999). Macro markets and financial security. *Federal Reserve Board of New York Economic Policy Review*, April.
- Bell, T. (2002). Gambling for the good, trading for the future: The legality of markets in science claims, *Chapman Law Review*, 159(5), 159–180.
- Berg, J., Nelson, F., Forsythe, R., & Rietz, T. (2003). *Results from a dozen years of election futures markets research*. Working Paper, University of Iowa.
- Bingham, A. (2003). Complexity Theory and Pharmaceutical R&D. *Credit Suisse First Boston*.
- Black, B. (2001). The legal and institutional preconditions for strong securities markets. *UCLA Law Review*, 48, 781–855.
- Blackwell, D. (1953). Equivalent comparison of experiments. *Annals of Mathematical Statistics*, 24, 265–272.
- CBS News.com. (2004). *U.S. to appeal cyber-bet ruling*, Lafayette, Louisiana.
- Cherry, S.M. (2003). *Toward a better future*. *IEE Spectrum Online*.
- Commodity and Securities Exchanges. Code of Federal Regulations. Title 17, Chapter 1: Commodity Futures Trading Commission.
- Commodity Exchange Act. (1974). 7 U.S.C.
- Commodity Futures Modernization Act. (2000). Appendix E, Public Law 106–554, 114 Stat. 2763.
- Commodity Futures Trading Commission. (2002). FY 2003 Annual Performance Report.
- Commodity Futures Trading Commission. (2004a). *The Economic Purpose of Futures Markets*.
- Commodity Futures Trading Commission. (2004b). *FY 2005 President's Budget and Performance Plan*.
- Department of Justice. (2000). *Jay cohen convicted of operating an off-shore sports betting business that accepted bets from Americans over the internet*. Washington, DC.
- Franklin, C. (2001). Virtual Las Vegas: Regulate or prohibit? *Duke Law and Technology Review*, 21.
- Futures Industry Association. (2004). About FIA.
- General Accounting Office. (1997). The commodity exchange act: Legal and regulatory issues remain.
- Giles, W. (2004). U.S. loses WTO ruling covering online gambling. *Las Vegas Sun*: Las Vegas.
- Glaser, J. (2002). Election time: What are the odds? *Wired News*.
- Glost, L., & Milgrom, P. (1985). Bid, ask, and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics*, 14, 71–100.
- Goldman Sachs Economic Derivatives Market. <http://www.gs.com/econderivs>.
- Gorham, M., & Biswall, B. (2005). The regulatory outlook for event markets: Cool with patches of fog, mimeo.
- Gorham, M. (2004). Event markets campaign for respect. *Futures Industry Magazine*, January/February.
- Grinols, E.L., & Mustard, D.B. (2001). Business profitability vs. social profitability: Evaluating the social contribution of industries with externalities and the case of the casino industry. *Managerial and Decision Economics*, 22, 143–162.
- Hahn, R.W., & Tetlock, P.C. (2005). Using information markets to improve public decision making. *Harvard Journal of Law and Public Policy*, 29(1), 213–289.



- Hanson, R. (2003). Shall we vote on values, but bet on beliefs? Working Paper. George Mason University, Department of Economics.
- Hedge Street. (2004). *Fact Sheet*. [www.hedgestreet.com](http://www.hedgestreet.com).
- Hirshleifer, J. (1971). The private and social value of information and the reward to inventive activity. *The American Economic Review*, 61(4), 561–574.
- Inman, R., & Rubinfeld, D. (1997). Rethinking federalism. *Journal of Economic Perspectives*, 11, 43–64.
- Iowa Electronic Markets. *About the Iowa Electronic Markets*. <http://www.biz.uiowa.edu/iem/about/>.
- Janower, C.R. (1996). Gambling on the internet. *Journal of Computer-Mediated Communication*, 2(2).
- Kezwer, G. (1996). Physicians say government-approved love affair with gambling sure bet to cause problems. *Canadian Medical Association Journal*, 163(1), 61–64.
- Kindt, J.W. (2001). The costs of addicted gamblers: Should the states initiate mega-lawsuits similar to the tobacco cases? *Managerial and Decision Economics*, 22, 17–63.
- Kiviat, B. (2004). *The end of management?* *Time Magazine*.
- Leach, J.A. (2000). Testimony before the House Committee on banking and financial services.
- McCullagh, D. (2003). PayPal settles over gambling transfers. *CNET News*.
- Mussington, D., Wilson, P., & Molander, R.C. (1998). *Exploring Money Laundering Vulnerabilities Through Emerging Cyberspace Technologies: A Caribbean-Based Exercise*. Washington, DC: RAND Corporation.
- Nasaw, D., & McDonald, I. (2004). Street sleuth: Firm offers hedging on a small scale. *The Wall Street Journal*. Oct. 22.
- National Association of Insurance Commissioners. (2003). Draft White Paper. *Weather Financial Instruments (Temperature): Insurance or Capital Markets Products?* September.
- National Gambling Impact Study Commission. (1999). *Final Report*, Washington, D.C.
- Pennock, D.M., Nielsen, F.A., & Giles, C.L. (2001). *Extracting collective probabilistic forecasts from web games*. International Conference on Knowledge Discovery and Data Mining, San Francisco, CA.
- Pethokoukis, J.M. (2004). All seeing all knowing. *USNews.com*.
- Plott, C.R. (2000). Markets as information gathering tools. *Southern Economic Journal*, 67(1), 2–15.
- Raiffa, H. (1968). *Decision analysis*. Reading, MA: Addison-Wesley.
- Richtel, M. (2004a). An industry that dares not meet in the country of its best customers. *New York Times*.
- Richtel, M. (2004b). Web engines plan to end online ads for gambling. *The New York Times*.
- Saum, B. (1999). Testimony before the subcommittee on technology, terrorism, and government information, senate Judiciary.
- Sauer, R. (1998). The economics of wagering markets. *Journal of Economic Literature*, 36(4), 2021–2064.
- Shaffer, H.J., & Hall, M.N. (2002). *Futures at stake: Youth, gambling, and society*. Reno, Nevada: University of Nevada Press.
- Sharpe, W. (1985). *Investments* (3rd ed.). Englewood Cliffs, New Jersey: Prentice-Hall Inc.
- Shiller, R. (2003). *The New Financial Order: Risk in the 21st Century*. Princeton, NJ: Princeton University Press.
- Shiller, R., & Schneider, R. (1998). Labor income indices designed for use in contracts promoting income risk management. *Review of Income and Wealth*, 44(2).
- Speyrer, J.F., & Ryan, T.P. (1999). Gambling in Louisiana: A benefit/cost analysis. University of New Orleans.
- Sunstein, C.R. (2004). Deliberation and Information Markets. In R.W. Hahn & P.C. Tetlock, (Eds.), *Information Markets: A New Way of Making Decisions in the Public and Private Sectors*. AEI-Brookings Joint Center for Regulatory Studies: Washington, DC. forthcoming.
- Surowiecki, J. (2004). *The Wisdom of the Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economics, Societies and Nations*: Doubleday.
- The Intercontinental Exchange. <http://www.intcx.com/about.html>.
- United States Senate Republican Policy Committee. (2003). *Illegal internet gambling: Problems and solutions*. Washington, DC.
- Wallsten, S. (2003). Congress shorts future terror-fighting innovation. *AEI-Brookings Joint Center*, Washington, DC.
- Winters, K.C., Stinchfield, R.D., & Kim, L.G. (1995). Monitoring adolescent gambling in Minnesota. *Journal of Gambling Studies*, 13(3), 179–192.
- Wolfers, J., & Zitzewitz, E. (2004). Prediction markets. *Journal of Economic Perspectives*, 18(2), 107–126.