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# Market-Based Prediction Models as an Aid to Litigation Strategy and Settlement Negotiations

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# MARKET-BASED PREDICTION MODELS AS AN AID TO LITIGATION STRATEGY AND SETTLEMENT NEGOTIATIONS

KRIS STECKMAN

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ABSTRACT

In his recent book, "Litigation is War," Fredrick L. Whitmer suggests effective advocacy in litigation mirrors many tactics common in strategic military preparation.[1] On a battlefield or in a courtroom, quantifying the likelihood of uncertainties that may hinder or facilitate a particular line of attack will provide an advantage to the party holding such information. Consider this scenario: you are a plaintiff bringing suit against a corporation for ten million dollars, your trial starts in two weeks, the corporation has offered to settle for one million dollars, but you believe that you deserve more; do you accept? There is no easy answer, but there is a question that any lawyer or client in that situation should reflect upon: How can I acquire the most accurate, cost-effective data about the viability and value of a particular case or cause of action? This article suggests a market designed to translate investments in various outcomes into predictions about the likelihood of various outcomes of a given situation.

This article will identify some of the major unmet needs of litigants today. It will explain how prediction markets, a new method of collecting research used for predicting outcomes in a wide variety of areas, can be crafted to assist clients in their litigation strategy and settlement negotiations. Finally, it will provide a sample market based on the uncertainties of an actual case.

## I. INTRODUCTION

The project of developing information markets to predict litigation outcomes was established by Mark Boyce, a venture philanthropist and social entrepreneur who has been involved in numerous for profit and non-profit ventures such as improving inner city schools, aiding microfinance institutions in the third world, aiding projects improving healthcare, and assisting orphans around the world. He received an MBA from Harvard as well as an MA in Theology from Fuller Seminary.

There are several other participants in this project.[2] One is Dr. Bruce Beron[3], who has areas of expertise including decision-making in litigation

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[1] *See* FREDRICK L. WHITMER, LITIGATION IS WAR (2007).

[2] The author of this article, Kris Steckman, is working part-time on this project and intends to join full-time upon completion of his JD/MBA from Pepperdine University.

[3] Dr. Beron studied Engineering Economics at Stanford University, was a post-doctoral fellow at Stanford University, and taught at California State University at Hayward. Dr. Beron received his B.A.

management and strategic planning.[4] Dr. Beron uses a "decision-tree analysis" to predict litigation uncertainties.

Part I of this article identifies the litigation services available currently, and discusses some of the shortcomings they exhibit that inhibit their ability to provide the most accurate data to litigants.

Part II explains what information markets are, how they are created, and how a litigation market can be crafted to extract the most accurate predictions from market participants. Also, the rules of the market and its design will be discussed.

Part III provides a comparison of various methods of group deliberation against information markets. It also assesses the predictive value of some better-known public and private information markets.

Part IV describes the research that the litigation market model will provide, and suggests how that information could be used by a litigant. It also explains some common communication problems that occur during litigations which could be avoided through the use of litigation markets. Lastly, Part IV sets forth some criteria by which to judge whether or not the facts of a litigation warrant research through a litigation market.

Part V presents the facts of *Boyce v. Soundview,*[5] providing readers with a set of sample uncertainties present in a real case. It then demonstrates how to create a sample market and craft it to address the litigation's key issues. Part V also identifies several critiques of information markets and provides responses.

This article concludes that the accuracy and usefulness of the information that litigation markets can provide will incline those frequently involved in litigations to seek out market predictions to reduce their legal costs.

## II. ASSESSING THE NEEDS OF LITIGANTS TODAY

### *A. Costs of Litigation and the Growing Need to Settle*

As attorneys continue to raise their hourly wages, the costs and risks associated with litigations warrant increased scrutiny.[6] In large civil litigations, litigants know that the cost of losing is so great that it rarely outweighs the advantage of settling; as recently as 2002, only one of every forty-six tort cases was actually tried.[7]

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with Honors from Princeton and an M.S. and Ph.D. from Stanford. He currently lectures at Stanford.

[4] Dr. Bruce L. Beron was the Manager of the Litigation Analysis and Decision & Risk Analysis Practices at Stanford Research Institute International ("SRI International"), a non-profit scientific research institute. While at SRI International, he trained over one thousand attorneys and executives in Litigation Analysis and Decision and Risk Analysis at SRI's highly acclaimed seminar program.

[5] Boyce v. Soundview Tech. Group, Inc., 464 F.3d 376 (2d Cir. 2006).

[6] *2005 Litigation Trends Survey* by international law firm Fulbright and Jaworski, *available at* http://www.fulbright.com/index.cfm?fuseaction=correspondence.formfindings, (responding companies showed an average legal budget of $20.1 million, with nearly half going to litigation. However, 10% of firms reported that their legal spending accounted for at least 5% of their company's overall gross revenues).

[7] *See* Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 3 J. OF EMPIRICAL LEGAL STUDIES 459-570 (2004).

Almost 90% of U.S. corporations are engaged in some litigation, and public companies are managing an average of thirty-seven lawsuits annually.[8] This article contends that while the current litigation services available to clients provide them some value, the broad range of information that research from litigation markets provides offers its users a more valuable service. It is likely that the biggest proponents of this service would be large corporate clients looking for assessments of multiple litigations so that they could most effectively spread their resources and determine which cases should be settled early on to avoid potential problems in the future.

*B. Pieces of the Puzzle: Current Litigation Services*

Consultants in the legal services industry advise on a broad range of topics for litigants. Many have carved out a niche, allowing them to develop some expertise in one particular area of consulting, but the one-dimensional nature of the services they provide prevents them from offering a comprehensive analysis of the data likely to be relevant to a litigant when they are making key decisions. One type of litigation service used today is jury consulting.[9] Also, mock trial services are popular among mid to large companies, generally at least one sample group of mock jurors will listen to an abbreviated trial, and give both quantitative and qualitative data regarding how they would decide if they were a juror. Additionally, there are services offered by consultants who specialize in settlement strategy and negotiation. [10]

One problem with jury consultants is that they make suggestions based on how the randomly-selected sample jurors responded to various arguments. It also may be foolish to assume that based on brief interaction between an attorney or client and a sample juror, a consultant can make an accurate prediction as to how all jurors who match a certain description will respond. Another problem, present both here and in mock trials, is that they are trying to better predict a random group's decision based solely on the personal opinions of an entirely separate random group.[11] This methodology appears far more prone to inaccurate results than research obtained through more objective means.[12]

A separate obstacle for litigation consultants specializing in settlements exists. To accurately appraise the value of a case, they would have to divorce their own opinions about a case they are working on, from their prediction. If this separation was possible, the consultant would still be basing his opinion on guesses

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[8] *See* 2005 Litigation Trends Survey, *supra* note 6.

[9] Although there are many types of jury consultants, one common scenario is where clients pay to have consultants suggest which types of jurors to select or remove based on their ability to analyze the sample jurors' interactions with the attorney and client.

[10] *See generally* Litigation Risk Management Institute website (LRMI), http://www.litigation riskmanagement.com/.

[11] Litigation markets will also provide superior predictions to a mock-trial because instead of only getting post-deliberation feedback, there will be predictions about a jury's likely verdict in addition to the other types of data collected.

[12] Litigation markets will provide insight into first impressions of potential jurors, providing the same type of data as would likely be collected by jury consultants.

about how a random jury would decide without any objective research.

Even if the prediction of a consultant was reasonably accurate, the breadth of data provided by one person valuing a case based on their guess of how a jury would decide does not compare to data provided in a litigation market.[13] Additionally, market predictions outperform expert predictions in a broad range of topics discussed infra, and this article concludes that litigation would not be an exception.

## III. WHY AND HOW ARE INFORMATION MARKETS USED?

### *A. What is an "Information Market"?*

An "information market" is a speculative market created for the purpose of making predictions of the outcome of a particular event.[14] Information markets attach a monetary value to each possible outcome of a certain event, with each result being treated as an "asset"[15] as if it were a stock traded in a futures market.[16] The price of each outcome is interpreted as the market's assessment of the likelihood of that outcome occurring.[17] Information markets use group predictions, but are unique in that they replace the subjective biases and influences that normally weigh heavily on a decision-makers' thoughts with a financial incentive for accurately predicting how a future event will turn out.[18]

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[13] The research provided to a litigant from a litigation market will be a combination of participant opinions, participant predictions, stock trading, and post-trading reflections and comments.

[14] Charles F. Manski., *Interpreting the Predictions of Prediction Markets,* NBER Working Paper No. W10359. (March 2004), http://ssrn.com/abstract=515253 (describing information markets as "future markets in which prices are used to predict future events").

[15] BLACK'S LAW DICTIONARY 47 (2nd Pocket ed. 2001). An asset is defined as "[a]n item that is owned and has value."

[16] OHENE AKU KWAPONG, MBA CONCEPTS AND FRAMEWORKS - TOOLS FOR WORKING PROFESSIONALS, 1 (Songhai 2005). A market is defined as "[t]he collection of buyers and sellers that determines the price of [the] product or set of products." In a futures market, "the good that is traded is some aspect of risk." *Id.* at 4. This means that the values of the securities available for purchase in a litigation market should reflect the perceived risks and probabilities participants hold.

[17] The market's "assessment" is the price a market will bear for a particular security, which will reflect a certain result or combination of contingencies and outcomes.

[18] Emile Servan et al., *Prediction Markets: Does Money Matter*, *in* ELECTRONIC MARKETS, 14-3, 2 (September 2004). Information markets derive their predictions from participants who are told to ignore their own personal belief in a correct outcome, and instead are rewarded for their ability to accurately predict how others will decide an issue. The form of economic incentive in some markets is the ability to invest real money, in other markets pretend money is used and participants are incentivized through recognition and rewards.

> Real-money likely yields particularly robust incentives for information discovery, and the large number of analysts on Wall Street is an example of these incentives in action. It is also likely that individuals will be willing to bet more on predictions they are more confident about, suggesting an advantage in *intrapersonal* opinion weighting. However, in a market, the weights given to participants' opinions reflect the amounts that they are willing to bet, which might be affected by their wealth levels. Thus, in real-money markets, these *interpersonal* opinion weights likely reflect the distribution of wealth which can often reflect returns to skills other than predictive ability, or luck (such as an inheritance). By contrast, the only way to amass wealth in a play-money exchange is by a history of accurate predictions. As such, it seems plausible that

*B. Information Markets as Part of a Preference Market Model*

"Preference markets"[19] are a new tool for conducting market research, utilizing aspects of financial markets, opinion surveys, and prediction markets.[20] Information markets aggregate data over an extended period of time, allowing researchers to assess trends and patterns within the market. Preference markets have a much shorter duration, and focus on the probabilities of outcomes at a particular point in time. A litigant will have a great interest in assessing the likelihood of various outcomes in their case on an expedited basis, particularly if a recent motion has been handed down in a pending trial.[21]

Preference markets have been used to quickly and efficiently collect data from participants.[22] This article suggests a preference market model with four phases of data collection after participants are presented with the facts of a case. In the first phase, market participants select from a range of statements the one which best reflects their opinion of what the correct result of given case should be. In the second phase, participants predict the likelihood of a jury returning each outcome.

In the third phase, each uncertainty that a client wants predicted will be turned into a "market," and each potential answer a participant will choose from will be a "stock" whose value represents the probability of the outcome occurring. The traders will be given virtual currency and use it to trade securities. In the fourth and final phase, participants will submit a revised jury prediction, as well as providing qualitative data regarding the basis for their answers to each of the surveys, and will be given the option to provide other comments about the strengths and weaknesses of the arguments they were presented with.

Unlike information markets, which assign probabilities based solely on the value of securities, preference markets allow for in-depth research into how personal preference, predictions of other's preferences, trading behavior, and pricing-readjustments all correlate.[23] Instead of benefiting from only the market portion of the research, preference markets will give insight into a pool of personal opinions on outcomes based on the materials provided to the market participants.

A potential flaw in information markets, as they would traditionally apply to litigation, is that they would not provide insight into the initial opinions of participants, but rather, would provide information only after they assessed and participated in the market.[24] The use of an information market as part of a larger

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> play-money exchanges could have a countervailing advantage in producing more efficient opinion weights.

*Id.* at 2.

[19] Ely Dahan et al., *Preference Markets: Organizing Securities Markets for Opinion Surveys with Infinite Scalability*, UCLA Anderson School of Management (November 19, 2007), *available at* http://ssrn.com/abstract=1031754.

[20] *Id.* at 4.

[21] Because pre-trial motions may significantly change the probabilities of a given outcome in a litigation, this article suggests that preference markets are a superior model for litigation.

[22] Dahan, *supra* note 19, at 2 ("Preference markets address the need for scalable, fast and engaging market research.").

[23] *See* Dahan, *supra* note 19.

[24] Litigation preference markets should provide data representing the personal preferences of jurors

preference market is the approach this article advocates; it provides maximum insight into the opinions of the members during each phase of the research.

In the litigation context, variables such as evidentiary rulings and jury instructions can be included in the data provided to preference market participants, allowing for fast predictions based on the totality of facts. In contrast, a regular information market would run continuously and its predictions may not provide an accurate assessment until trading in an event has been completed. For these reasons, a litigation market is best structured with the information market being one phase of the data collection process.

The foundation of information markets is the investor's inclination to benefit from a perceived under-valuation or over-valuation of a particular asset.[25] Information markets rely on the "efficient market hypothesis," which states that a market is "efficient" if new information is quickly incorporated into the prices of market securities.[26] All market participants will be provided the same information about the case. Traders will invest in different outcomes and the prices and amounts of shares in each outcome being bought and sold will be instantly available to the traders.[27]

### *C. Four Phases of Market Research*

The litigation market service will be a combination of data gathered from opinions, predictions, and trading results by its members.[28] After providing the relevant information to all participants, a survey of their personal opinions regarding the correct or "just" outcome will be disseminated.[29] Next a survey will be given asking participants to make predictions of the likelihood of a jury returning the various outcomes.[30] After the predictions are made, the participants will enter an online market where each possible result of the uncertainties will have a value attached, and participants will be given imaginary funds with which they will buy and sell securities. All the possible outcomes for a given uncertainty will add up to one hundred dollars, and the price of each outcome will represent

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by providing opinion surveys before the market opens. Litigation markets should also predict the collective preference of a jury by using market participation to reflect an ideal deliberative process.

[25] If a trader/investor believes that a security has a lower cost than its probability of occurring, they should invest to benefit from this undervaluation, and this investment will be reflected in market adjustments depending on the quantity and trading price.

[26] *See generally* Eugene Fama*, Efficient Capital Markets: A Review of Theory and Empirical Work Journal of Finance*, 25 J. Fin. 383 n. 2 (1970) (discussing theoretical underpinnings of efficient markets and empirical testing of the efficient markets hypothesis). In an efficient market, the price of a security will reflect the most accurate, unbiased probability of an outcome based on the totality of information available.

[27] Updating trading data during the market will provide the impetus for ongoing transactions.

[28] This article proposes a litigation market methodology for providing maximum information to a litigant. Depending on the needs of a client, one or more phases, besides the actual trading of securities, could be removed from the model if a client did not have an interest in the information they provide.

[29] Each participant will be given a survey containing each relevant uncertainty in the case, and will then be asked to select the result that best represents how they believe the outcome should be decided.

[30] Each participant will be given a second survey with the same uncertainties and possible results, but this time they will be asked to select the result they believe a jury would choose.

the likelihood of that occurrence.[31]

After the buying and selling of securities is completed and the market prices adjust to reflect the trading, a final opinion survey will be provided. This survey will allow participants to share any information they choose regarding how they arrived at their decisions in the prior surveys, and invite their assessment of the strengths and weaknesses of each argument on key issues.

Each phase of research can be used to test different concerns of a litigant. The first opinion surveys will provide research indicating initial reactions to the facts of a case, i.e. what a jury member believes before deliberation.

The second phase, the jury prediction survey, will serve to provide research as to what the group prediction before market-trading will be, so that the litigant will have insight into how much impact the market had on predictions of individual participants. In the third phase, because all participants are provided the same data, there is limited information on which they will buy and sell securities after trading has begun.[32] This creates an efficient market because all the relevant information available about a stock is reflected each time its price updates. Each participant in the market has been made aware of all available data relevant to their determination.

*D. Design/Definition of Virtual Securities*

The design for the litigation market will be adapted from a recent work on creating preference markets to assess consumer preferences for features on smart phones.[33] Preference markets are used to "elicit from respondents (traders) the most truthful measurement of their expectations, and to negotiate a consensus among the traders as to the group's overall preferences."[34] Each security in the market will have one or more possible scenarios for the outcome of a pending litigation. Participants will be instructed that the value of each share of stock should be reflective of the probability of that occurrence.

Four rules have been suggested in order for a preference market to function properly, (1) traders must understand the outcome from which each stock is derived; (2) the number of stocks a trader manages must be controllable; (3) the process of trading in outcomes with other participants must approximate the deliberative process in which jury members engage; (4) each trader must have an incentive to reveal information relevant to their valuations.[35] The experiment will be designed to maximize the chances that each of these requirements will be met.

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[31] Participants will have real-time access to the volume and price of every share being traded while the market is open, and live chat will be available on the market site during trading to facilitate full disclosure.

[32] The information will be the quantity and price of shares being traded, and the adjusted value of the securities after each trade.

[33] *See* Dahan, *supra* note 19. Preference markets have been used primarily to collect rapid data indicating preferences among groups of various product features.

[34] *Id.*

[35] *Id.*

*E. Experimental Design*

The requirements to participate in a given litigation market could vary depending on the specifics of each case. This article will propose to break the participants down into two categories, the first is subject matter experts,[36] and the second is non-experts.[37] Both the experts and non-experts will be randomly grouped together in smaller subgroups.[38] Trading will be possible both within one's subgroup, and across subgroups to promote market efficiency reflected in stock prices.[39] Some subgroups will be excluded from the larger trading market, providing greater inter-test reliability by testing independent group assessments of probabilities.

All market participants will be exposed to a compressed description of all the material facts of the case, the procedural posture of the case, and differing characterizations and beliefs under which each side is operating.[40] Before any collection of data from participants, subject matter experts will be exposed to a decision tree which will diagram each key contingency in the case.[41] In a decision tree, at the top will be a list of the uncertainties, from left to right, generally tending to be focused on evidentiary rulings, liability determinations, and damage awards.

The tree will identify the possible outcomes for each event, and continue to provide predictions of the likelihood of each outcome, building on the previous response.[42] The litigation tree will be created by a litigation expert reviewing the court documents, and discussing the issues with both clients and their counsel.

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[36] Five fields this article suggests as appropriate for expert markets include: accounting and financial services; biomedical; legal; entertainment; and business and investment. The particular requirements to be considered an expert will vary depending on the nature of the suit.

[37] The screening process for approving non-experts might involve submission of a short writing sample, or a description of their background, and a resume. Empirical research of alternate types of screening will indicate which factors produce the most accurate results.

[38] *See* JOYCE BERG, ROBERT FORSYTHE, FORREST NELSON & THOMAS RIETZ, RESULTS FROM A DOZEN YEARS OF ELECTION FUTURES MARKET RESEARCH (2003), http://www.biz.uiowa.edu/iem/archive/BFNR_2000.pdf. The most accurate predictions are those that combine predictions from several markets because the patterns of traders both intra-group and inter-group can be analyzed and used in generating predictions.

[39] Additionally various market compositions could be pitted against each other. There are also various tactics to tailor markets to various demands for speed or a large number of uncertainties to be presented.

[40] The particular circumstances of a given case will dictate the type and breadth of information relayed to the participants. Examples of the material which will be provided will include an online video-feed of an opening statement and closing statement. Also, any information regarding key distinctions or findings of the court previously will be available.

[41] The work of Dr. Bruce Beron centers around using decision-tree analysis to weigh potential gains of continued litigation against the risks, as determined from in-depth conversation with litigants and their attorneys.

[42] The tree can provide predictions of outcomes when used as a litigation tool in itself, but for the purpose of the market, this article suggests the tree be left blank, and used only to help participants visualize the outcomes they are being asked to predict.

*F. Market Design*

A continuous online double auction system will be how traders make sales, i.e. each sale requires a willing buyer and seller at a given price.[43] Additional funds, in Court Cash,[44] will be given to promote liquidity without inciting overly-speculative behavior.

The markets will last between thirty-five and fifty-five minutes, but the participants will not be aware of the duration, so as to avoid "boundary effects."[45] In addition to the information provided before the market begins, participants will have a real-time feed apprising them of the last prices and quantities of trades, as well as the total volume being traded in different outcomes.[46] Additionally, participants will be able to discuss their predictions, and their motivations on a discussion board that will be running for the duration of the online market.

The amount of participants/respondents per group will be based on the need for liquidity in each stock combined with the amount of stocks it is determined each participant can manage.[47] For example, if each participant can handle fifteen stocks, and each stock needs to be traded by fifteen people, then each trader subgroup may have fifteen stocks dispersed.[48]

*G. Incentives*

Participants in the litigation market will be paid for their participation in opinion and prediction surveys; they will not be paid to participate in the actual market itself. Traders will however be rewarded for meeting various achievement goals in their predictions. One such achievement is being the participant whose initial predictions most closely resemble the market's final projection, which will provide an incentive to each participant to advocate their position as strongly as possible and discourage the withholding of relevant information. There will also be a reward for the participant whose portfolio has the highest gains. Lastly, there will be a reward for the most active trader in each subgroup, which will further ensure the liquidity of each market is sufficient to create a reliable prediction.

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[43] Each share will have a maximum value of 100.00, as its value is meant to represent the probability it will come true. These are sample numbers, actual amounts will be determined on a case-by-case basis. In some cases it will be adequately effective to provide only virtual currency, and to let the market participants trade at their discretion.

[44] Virtual money is used for this buying and selling of outcomes.

[45] Trades made in response to the closing of a market. *See* Dahan, *supra* note 19.

[46] Depending on the chosen mechanism of enlisting participants, and the prevalence of repeat traders, some markets have been designed to weigh a trader's predictions based on factors including their strength of conviction, history of risk, and predictive accuracy in the past. In the context of consumer research this is a logical decision, however at this time it is not apparent that research will show a cross-over talent to predict outcomes from litigations of differing types.

[47] *See* Dahan, *supra* note 19, at 4.

[48] Traders are informed prior to the market opening that each share's value should reflect the likelihood of that outcome coming true. *See id*. (explaining that preference markets show price equilibrium may occur within minutes of the opening of trading, and most stock prices stabilize within one hour).

## IV. WHY INFORMATION MARKETS PREDICT OUTCOMES ACCURATELY

### *A. Information Markets Distinguished From Other Group Judgments*

It is generally accepted that a large sample of persons in a decision-making process will yield more just results than a smaller sample; this is exemplified in our justice system by a right to a jury of twelve peers, not just one.[49] At least three approaches to using group judgment merit discussion. One application of group judgment takes a group of individuals and has them come to a collective agreement on an issue, i.e. group deliberation. A second application is to take a group of individuals, poll them, and calculate an average response, i.e. statistical means.

The third method of utilizing a group's judgment is an improvement over the previously mentioned means, in that it removes the pressures of group deliberation, and provides more and better information than a statistical mean ever could. This method is to create a market and allow participants to buy and sell possible outcomes whose final value will reflect the group's prediction of the likelihood of that event occurring, i.e. an information market.[50]

To appreciate the value of information markets as predictive tools, it is useful to consider some pitfalls of other methods of culling data from group predictions. One example of where group deliberation is supposed to take place is during the discussions between jurors in a pending trial. One benefit of deliberation is supposedly the ability of each participant to provide the group with all the information he is using to make decisions.[51] Deliberation, while theoretically an unfettered back-and-forth flow of ideas, is not an efficient way to disseminate information because of the imperfect nature of human interactions.[52]

### *B. Why Information Markets Predict Better than Group Deliberation*

One problem with group deliberation is what is commonly called "groupthink."[53] Groupthink occurs when a group dynamic imposes an interest in

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[49] William P. Bottom & Krishna Ladha & Gary J. Miller, *Propagation of Individual Bias Through Group Judgment: Error in the Treatment of Asymmetrically Informative Signals*, 25:2 J. RISK & UNCERTAINTY 147, 152 (2002):

> The use of groups as decision aids is a time-honored principal and very much in vogue today. Firms go to great expense to create and empower teams as problem-solving units. Key decisions are often presented to committees of decision-makers rather than left to individuals. Even in hierarchical organizations in which the CEO has a significant degree of power, the firm often has a "policy committee" that makes decisions with or for the CEO.

*Id.*

[50] The values/probabilities are determined by which securities are bought and sold, and at what price.

[51] Cass R. Sunstein, *Group Judgments: Deliberation, Statistical Means, and Information Markets*, 80 N.Y.U. L. Rev. 962, 963 (2005). (Noting "[g]roups might ensure deliberation, asking for the reasoned exchange of facts, ideas, and opinions").

[52] *Id.* at 967. *See also* RICHARD A. POSNER, LAW, PRAGMATISM, AND DEMOCRACY (Harvard University Press) (2003) (concluding that deliberative democracy is an unrealistic goal in the face of other pragmatic legal concerns).

[53] IRVING L. JANIS, VICTIMS OF GROUPTHINK: A PSYCHOLOGICAL STUDY OF FOREIGN-POLICY

uniformity on an individual which supersedes the true goal of communication of all available knowledge, ideas and beliefs.[54] One example of groupthink, cited by a leading scholar on information markets, Professor Cass R. Sunstein, describes the CIA's failed efforts to accurately assess if weapons of mass destruction existed in Iraq:

> [T]he agency's predisposition to find a serious threat from Iraq caused it to fail to explore alternative possibilities or to obtain and use the information that it actually held. In the Committee's view, the CIA "demonstrated several aspects of group think: *examining few alternatives, selective gathering of information, pressure to conform within the group or withhold criticism, and collective rationalization*." Thus the agency showed a "tendency to reject information that contradicted the presumption" that Iraq had weapons of mass destruction. Because of that presumption, the agency failed to use its own formalized methods "to challenge assumptions and 'groupthink,' such as 'red teams,' 'devil's advocacy,' and other types of alternative or competitive analysis.[55]

The inability of intelligent, educated persons to objectively assess matters critical to national security is a powerful indicator that group deliberation by itself is not an optimally accurate method of prediction.

Another potential problem with group deliberation can be described as "informational influences," i.e. a reluctance of persons to disclose what they know or believe after contrary information has been shared with the group.[56] A second issue is "social pressures" on a group member, which represent one's fear of disapproval from their peer group.[57] Informational influence and social pressure have been found to dramatically affect positions that individuals will take when they are in a group setting, and have been identified as amplifying biases, rather than correcting them.[58]

This need for approval is basic to human nature, affecting even persons whose jobs theoretically require divorcing personal beliefs and concerns from their decisions. Commentators have noted "[e]ven federal judges are vulnerable to the relevant pressures, as both Republican and Democratic appointees show especially ideological voting when they are sitting with other judges appointed by presidents of the same political party."[59] Although one cannot analyze the validity of judges' decisions, there is empirical data on a group deliberation's predictive accuracy for

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DECISIONS AND FIASCOES 9 (Houghton Mifflin Co. 1972). Groupthink has been defined as "a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when *the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action*." *Id.* (emphasis added).

[54] *Id.*

[55] Sunstein, *supra* note 51, at 965 (citing S. COMM. ON INTELLIGENCE, U.S. INTELLIGENCE COMMUNITY'S PREWAR INTELLIGENCE ASSESSMENTS ON IRAQ TOGETHER WITH ADDITIONAL VIEWS, S. REP. NO. 108-301, at 4-7 (2004), *available at* http://intelligence.senate.gov/108301.pdf) (citations omitted) (emphasis added).

[56] *See* Sunstein, *supra* note 51, at 966.

[57] *Id.*

[58] *Id.*; *see also* Cass R. Sunstein, David Schkade & Lisa Michelle Ellman, *Ideological Voting on Federal Courts of Appeals: A Preliminary Investigation*, 90 VA. L. REV. 301, 304-06, 314 (2004).

[59] *See* Sunstein, *supra* note 51, at 966.

questions with definite answers.

Group deliberations on issues with definitive answers tend to produce predictions slightly better than the average member, but worse than the best members of the group.[60]

The problems that afflict deliberation as a predictive tool do not impair the efficiency of market-based prediction tools. The following simplified scenario shows why information markets have the ability to capture probabilities more accurately than group deliberation.

One hundred individuals (collectively "Group A") are directed to deliberate and determine the probability of the American Football Conference ("AFC") or National Football Conference ("NFC") champion winning the Super Bowl, the combined probability being 100% because one team or the other will win. Next assume Group B is comprised of 100 individuals organized for the same purpose, who will be able to buy and sell AFC or NFC futures to determine the value, and hence likelihood of each possible result.

In Group A, if a self-professed expert predicts the NFC will prevail based on his own personal knowledge of football, this could: (1) disincline others with knowledge to share it, (2) disincline others with an opinion to admit it, and (3) prevent those without an opinion from getting a full or unbiased presentation of the facts. Statistically, the results are likely to yield only a slightly more accurate prediction than the average member, but a less accurate prediction than the group's best predictors.

In Group B, assume both AFC and NFC futures initially cost 50 cents The pay-out for a correct prediction is $1.00. A similar self-proclaimed expert's prediction to the group might cause some of the group to buy NFC futures, which is reflected in a gain in the value of NFC futures to 60 cents, and a corresponding decrease in the price of AFC futures to 40 cents.

The participants who disagree with this "expert's" prediction are presented with a variety of opportunities to profit from their wisdom. One such method is a long term investment in AFC futures, with profits maximized by purchasing at what a trader determines to be below the true value.

A second method is for traders to buy low, intending to sell high, allowing them to profit through the market based on their ability to predict which way the stock was trending accurately. The mechanism for valuing stocks will continue until trades, and hence prices, level off and reach some type of equilibrium.[61]

The difference between the data that Group A and Group B would provide reflects an important utility of information markets; the ability of a person to base their investments on both their own beliefs and on the quality of the arguments others used to justify their own determinations. Instead of remaining quiet, a market-participant will be incentivized to communicate his or her beliefs and

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[60] *Id.* at 982 (empirical data showing that group judgments do not tend to be as accurate as the predictions of the group's best members) (citing Daniel Gigone & Reid Hastie*, Proper Analysis of the Accuracy of Group Judgments*, 121 PSYCHOL. BULL. 149, 153 (1997)).

[61] *See* Dahan, *supra* note 19. Prices for many securities in the market this article suggests begin to stabilize within a few minutes of trading and tend to level off significantly within one hour.

reasoning to the group so that their shares become more valuable as similar investment decisions are made.

### *C. Why Information Markets Predict Better than Statistical Means*

Statistical averages are not based on the value of exchanged ideas, but on the notion that "the probability of a correct answer, by a majority of the group, increases toward certainty as the size of the group increases."[62] Condorcet's Jury Theorem states that if more than 50% of participants are more than 50% likely to be right, the likelihood of a correct answer will increase as the group increases.[63]

In practice, the Condorcet's Jury Theorem has been hard to apply.[64] An accurate prediction requires three conditions to be present, (1) people would not be affected by their vote being decisive, (2) people would not be affected by one another's votes, and (3) the probability that any one person will be right would be independent of the probability that another participant will be right.[65] The third prong of this theorem requires certainty that the accuracy of each participant is independent of all other participants. If a common background, opinion, or misconception is affecting multiple group members in the same way, the probability that each person will be correct is not independent of each other participant. There is no scientific way to assure some unforeseen factor is not skewing any predictions made under this theorem, however if this concern is overlooked, there are other obstacles to avoid.[66]

A systemic bias may be created by a distortion or obfuscation of materials provided to participants.[67] This may result in an "anchor," i.e. an arbitrary number considered by decision-makers, skewing results of a statistical average. [68] Another potential problem is if each individual answer is less accurate than a random answer. This occurs when an unfounded belief exists, i.e., one thinks he knows something when in fact he does not, or if a decision must be made when adequate

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[62] Bottom, Ladha & Miller, *supra* note 49, at 152. The theorem requires a confluence of factors to be present for accurate predictions which this article concludes are unrealistic. See *infra* notes 33-37.

[63] *Id.* at 153 (contending that when certain conditions are met, a majority of a group will predict more accurately than the average member, and further, that when size increases, on this principal, so too should the predictive accuracy).

[64] Sunstein, *supra* note 51, at 973-76.

[65] *Id.* at 973.

[66] *Id.* (noting "the Condorcet Jury Theorem has been shown to be robust to violations of this third assumption" that accuracy of a participant's prediction will be unrelated to the likelihood of all other participant's predictions being correct).

[67] *Id.*

[68] *See* Sunstein, *supra* note 51, at 975 ("[P]eople's answers will be systematically biased toward understating the actual number, producing an unreliable median."). Sunstein writes:

> [P]laintiff's demand is likely to affect damage awards for harms that are difficult to monetize. Groups are no less subject to those effects than individuals. Even judges have been found to be subject to irrelevant anchors, and there is every reason to believe that multimember courts would be at least as vulnerable to them as individual judges are.

*Id.* (citations omitted); *see also* Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 790-91 (2001).

information is lacking or the issue at hand is not sufficiently clear.[69] Many of the pitfalls associated with predictions from statistical means do not threaten information market predictions.

One advantage of information markets over statistical means is that market results do not reflect each person's opinion, but rather reflect each person's prediction of how a group will decide. Rather than risking predictive accuracy by allowing each person's bias to reduce their ability to prognosticate, markets provide an incentive to ignore one's own biases and instead focus on how others are likely to decide.[70] Additionally, there is no risk of a particular number anchoring predictions by the market; participants will be able to choose from a range of values, reducing the chance of skewed results.

The fear of unfounded beliefs destroying the accuracy of a group prediction is also eliminated by the use of a market system. Irrational decision-makers will swing the price of securities traded in one direction, but others with a rational assessment of the situation will invest, allowing the market to return to equilibrium.

One final reason information markets frequently turn out to be better predictors than statistical means or averages is that they do not require an increasingly large sample group to increase the likelihood of accurate predictions.[71] In information markets, participants are already equipped with the relevant information and there is no fear of incorrectly-informed, or worse-than-random individual guesses skewing results.[72] Information markets eliminate much of the bias created by both collections of individual opinions and predictions made from group deliberation.[73]

### *D. Accuracy of Public Information Markets*

Information markets are being used in a wide variety of arenas. Public information markets have been and continue to be utilized to make predictions on politics, entertainment, and sports, as well as many other topics. Private information markets are currently being used by many Fortune 500 companies to gain deeper insight into the public response to various projects, products, and policies, as discussed below.

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[69] *See* Sunstein, *supra* note 51, at 976.

[70] One such example of this ability is the Iowa Electronic Markets, in which a group of a few hundred traders investing between 5 and 500 dollars have more accurately predicted presidential election results than opinion polls taken as recently as the day before an election. *See infra* at notes 46-49.

[71] *See generally* Fama, *supra* note 26. Under the efficient market hypothesis, as long as each security has a sufficient amount of liquidity (i.e. an adequate number of shares bought or sold), the prices should reflect all the available information. Thus as long as the market is liquid, an increasingly large sample will not be required to make accurate predictions.

[72] *Id.* All material information regarding a particular case will be provided to all participants; therefore, everyone has equal and accurate access to the facts. In financial markets which are much more volatile and speculative, all information is not always held by all participants, which is one reason markets have crashes, adjustments, and corrections.

[73] *Id.*

*1. Politics*

Information markets have been used to predict outcomes in politics for decades. The Iowa Electronic Markets, more specifically the Iowa Political Markets, are the most famous of these political markets.[74] One type of market available for investment is the "vote-share market," where market members invest in the outcome of a certain percent of the popular vote, Republican or Democratic candidate.[75] Participants invest anywhere from $5 to $500 dollars in a market.[76] Investment is capped at a price to ensure the market is used for research and academic purposes, not for just financial gain, although the trading system provides a variety of methodologies to make financial gains.[77]

The absolute margin of error of information markets on a subset of national elections was measured against the accuracy of polls for the same elections, over the same time-frame.[78] The two measures for accuracy of the market were the value of the shares at midnight, the night before elections, and the volume weighted average price of all transactions over the week before the state and national elections.[79] Out of fifteen markets, nine outperformed national polls, by either standard of market accuracy.[80] The average margin of error from polling was 1.93%, the average from the information markets was 1.49% or 1.58%, depending on which standard of market accuracy was applied.[81]

The results of the Iowa Political Markets have led to extensive commentary

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[74] JOYCE BERG, ROBERT FORSYTHE, FORREST NELSON & THOMAS RIETZ, RESULTS FROM A DOZEN YEARS OF ELECTION FUTURES MARKET RESEARCH (2003), http://www.biz.uiowa.edu/faculty/trietz/papers/iemresults.pdf.

[75] *Id.*

[76] *Id.*

[77] Investors have the ability to purchase shares of either future, and retain that investment until the election determines a winner. They may also buy shares in whichever party the participant believes will gain momentum (as reflected in share price), with the intent to sell later, at a higher price. Investors may also sell a future "short," which is a contract to sell a security at a certain price in the future, using a specially designed bundle system discussed below. Short selling cannot be done directly using IEM because participants are not permitted to sell futures that they do not hold in their portfolios. However, investors may buy a bundle, which is a $1.00 fixed price investment guaranteed to liquidate after the election at 1.00. Such bundles will contain one DEM08 share redeemable for 1.00 (if a Democrat wins) and one REP08 share redeemable for 1.00 (if a Republican wins). At the same time, they contract to sell part of the contents of the bundle at a later date. If a speculator buys a bundle and makes a deal to sell REP08 to a trader at a later date for 40 cents, but believes its value will drop below this, the speculator, if correct, will profit by arbitraging the difference between 40 cents and value on the date of sale, while receiving the liquidation value of the DEM08 share at $1.00.If a speculator perceives an irrationally priced market, he or she may employ a different strategy. In a winner-take-all market, for example, the price of shares should equal $1.00, because the price should reflect adding the probability of each share winning. In some cases, however, the shares' total value may exceed 1.00, and speculators may seek to profit by "short-selling" what they perceive to be an over-priced share. Alternatively, they may seek to profit if the total is below $1.00, by investing in what they believe to be under-valued shares.

[78] *Id.*

[79] *Id.*

[80] *Id.* The market included results of the 1988 and 1992 elections, both of which were predicted by the Iowa Political Markets within two-tenths of a point which was dramatically more accurate than polling.

[81] BERG ET AL., *supra* note 38.

on the effectiveness of information markets.[82] The predictive accuracy of the information markets has also encouraged major news distributor The Wall Street Journal to create its own political prediction market, available to all online journal members.[83]

*2. Entertainment*

The Hollywood Stock Exchange[84] is a site that allows participants to invest based on their predictions as to events in the entertainment industry.[85] These include how much a movie will gross, who will win Oscars, and how much a given star is worth.[86] When a participant joins the site, they are given two million "Hollywood Dollars" which they may then invest in various stars and movies, which they believe to be undervalued based on their knowledge of the industry.[87]

Just like a real stock market, there are initial public offerings ("IPOs").[88] Securities begin to be traded when there is still speculation as to whether or not the movie will be made.[89] If a movie is predicted to gross $100 million, a share of stock in that movie would sell at 100 Hollywood Dollars.[90] As in a real stock market, speculative investments offer greater reward for higher risk. Because the market is efficient, any inside knowledge of the movie industry will be reflected in the value of the shares. If another participant believes a movie will not be made or will not be a success, they can short-sell.[91]

Another key feature of the site is the ability to have free-flowing communication between the participants.[92] The discussion why parties are investing, presumably with hopes of convincing others to do the same, will also cause a member who does not agree with that conclusion to profit from selling short. Some members are tremendously accurate, leading to outstanding gains in Hollywood Dollars, for which they are rewarded with not only recognition on the

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[82] *See generally* Miriam A. Cherry & Robert L. Rogers, *Markets for Markets: Origins and Subjects of Information Markets*, 58 RUTGERS L. REV. 339 (2006).

[83] *See also* Justin Wolfers, *Best Bet for Next President: Prediction Markets*, WALL ST. J., Dec, 31, 2007, *available at* http://online.wsj.com/article/SB119902559340658043.html.

[84] The Hollywood Stock Exchange, http://www.hsx.com (last visited Dec. 22, 2007).

[85] The Hollywood Stock Exchange, http://www.hsx.com/about/ (last visited Feb. 16, 2009).

[86] *Id.*

[87] The Hollywood Stock Exchange, http://www.hsx.com/about/whatishsx.htm (last visited Feb. 16, 2009). Insider knowledge of the industry is not a threat to the HSX, all information is collectively interpreted through the market-pricing process.

[88] The Hollywood Stock Exchange, What is HSX?, http://www.hsx.com/about/whatishsx.htm (last visited Feb. 16, 2009). IPOs are the first sale of a stock offered to the public, either on a stock exchange, or in the case of HSX, offered on the Hollywood Market.

[89] *See* The Hollywood Stock Exchange, *supra* note 84.

[90] *Id.*

[91] *See* The Hollywood Stock Exchange, *supra* note 84. The selling of a security that the seller does not own, or any sale that is completed by the delivery of a security borrowed by the seller. Short sellers assume that they will be able to buy the stock at a lower amount than the price at which they sold short.

[92] Blogs and discussion boards are examples of the opportunity to provide insight, and/or justifications for the investments traders make.

site, but also through the ability to sell HSX portfolios for actual money.[93] One participant turned his initial two million dollars into over $460 million.[94]

The overall accuracy of HSX's predictions is unparalleled. In 2007 it correctly predicted thirty-two out of the thirty-nine major-category Oscar nominees, and correctly predicted seven out of eight Top Category winners.[95] A London-based unit of Cantor Fitzgerald owns the Hollywood Stock Exchange, and the overall results of its predictions set the groundwork for real-money applications of this prediction tool.[96]

Cantor is currently selling the research culled from HSX to Hollywood studios, and one writer explained the advantage noting: "Most research firms determine consumer attitudes through interviews, surveys and focus groups, but HSX, by analyzing trading, can get a day-by-day picture of shifts in sentiment."[97] The greatest value HSX offers to Hollywood is to give executives a very accurate view of the current interest and likely profitability of a movie while the studios are still in the budgeting phase of the project, a possibility that they have not had previously.[98]

### *E. Accuracy of Private Information Markets*

Prediction markets are gaining popularity as a method for large companies to forecast sales, growth, and areas of strength and weakness based on the collective knowledge of their employees.[99] One company which has designed its own prediction market for internal use and continues to reap the benefits is Hewlett Packard.[100] At Hewlett Packard laboratories, employees were asked to make predictions on twelve issues regarding product sales and profit sharing over three years.[101] Although a range of employees were chosen, including those with minimal information about the company (to represent the typical uninformed investor in any equity or derivative market), the predictions were more accurate than the official company forecast.[102]

Intel is also using information markets internally to assist in its production

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[93] Norm Alster, *It's Just a Game, but Hollywood Is Paying Attention*, N.Y. TIMES, Nov. 23, 2003, *available at* http://www.hsx.com/about/press/15709.pdf

[94] *Id.*

[95] *Id.*

[96] *See* Alster, *supra* note 93 ("After buying the game, Cantor introduced film futures for its investment clients in Britain, using real money in this case. With the Hollywood Exchange as a guide, Cantor puts a price on a certain film and the customers can bet on whether that will ultimately be too high or too low.").

[97] *Id.*

[98] *Id.*

[99] Although some employees with no inside information regarding company policies and plans are often included in the markets.

[100] Helen Shaw, *Betting the Ranch on Your Company*, CFO MAG., Mar. 6, 2006, *available at* http://www.cfo.com/article.cfm/5591575.

[101] *Id*.

[102] *Id*.

decisions, based on demand-risk.[103] The assessment of its markets was based on three factors: accuracy, stability, and the timeliness of responses in relation to actual occurrences.[104] Over eighteen months, six of eight markets exhibited over 97% accuracy in their forecasts.[105]

These markets have been found to be more accurate than company forecasts, by as much as 20%.[106] Also of note, is that there is less fluctuation within a given month in an information market's predictions than in the company's forecast itself.[107] Based on the accuracy and utility of its budding information market project, Intel disclosed its intent to significantly increase its internal prediction market program last year.[108]

The ability of markets to accurately reflect outcomes on a broad array of topics indicates that there is a substantial chance a market could be adapted for litigation.

## V. WHY AND HOW LITIGATION MARKETS BENEFIT LITIGANTS

### *A. How to Use Litigation Market Research*

The data that is provided through market research will be one of many decision-making tools in a litigant's arsenal; it is not intended to replace the judgment of clients or attorneys. The decision to continue a litigation or settle, as well as the determination of an acceptable settlement number cannot be made for a litigant; many other factors must be considered. There are many subjective considerations which the market cannot address, but could impact a litigant's course of action as much or more than market predictions. Some examples identified by its authors include: risk aversion, present need for funds, willingness to continue litigation, willingness to appeal a verdict, and lastly, the impact of various outcomes on the social or business relationships of the litigant.

Additionally the timing of the market is a factor. Markets are anticipated to be most beneficial to a litigant in the weeks or months before a trial begins when a judge is making crucial determinations on the admissibility of evidence, expert testimony, and applicable jury instructions. In response to a judge's rulings, the market is designed to rapidly assess the impact of rulings on the strength of various arguments, and the overall predicted value of a jury verdict or settlement.

Research from litigation market services will likely be used predominantly

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[103] Jay Hopman, *Using Forecasting Markets to Manage Demand Risk. Volume*, INTEL TECH. J., May 16, 2007, *available at* http://www.intel.com/technology/itj/2007/v11i2/4-forecasting/1-abstract.htm.

[104] *Id.*

[105] *Id.*

[106] *Id*.

[107] *Id*. "In fact, the IAM forecasts are quite stable, with as much as 20% less fluctuation from month to month than the official forecasts during the same period." *Id.*

[108] *Id*. "Based on the results and word-of-mouth advertising, interest in expanding the research into new parts of the business is growing. We expect the number of forecasting markets to quadruple in the next three months. More implementations producing more data will accelerate our pace of learning." *Id.*

by high-net worth individuals and large companies when it first becomes available because they tend to have the most to lose, and hence will be the most willing to test out a new tool designed to provide them a tactical edge. We anticipate as the service becomes more commonplace, and the process becomes more streamlined, its use will spread to medium-sized companies, and a larger number of individual litigants.

### *B. Strengthening Communication through Market Predictions*

There are often communication failures in litigations between attorneys, clients and jurors. Problems often occur when: (1) a client and their attorney fail to reach unanimity on a litigation strategy; (2) a client and their attorney fail to appreciate how their argument is perceived by objective parties; or (3) both parties to the lawsuit refuse to give credence to their opposition's arguments, and hence cannot effectively discuss settlement.[109] A litigation market may assist in the first problem by presenting different arguments to markets and comparing the overall results. The second problem would also be solved by a litigation market because objective parties would be providing assessments of each argument, depending on the appropriate inquiry.

The final problem, parties being unable to see eye-to-eye, would also be alleviated by litigation markets. An objective assessment of the case, as reflected in the market's predictions would allow a litigant to gain insight as to which of their adversaries' arguments are most likely to sway jurors. An old adage provides "a successful negotiation is one where both parties walk away unhappy with the deal," but with the ability to gain an outside opinion on the likely results, negotiations could be much less exasperating for informed litigants.

### *C. Parameters for Applicable Types of Litigations to Predict*

Because no market-based strategies have ever been considered for litigation predictions, there is no empirical research on what types of litigations lend themselves to using litigation markets.[110] One factor likely relevant would be the use of a market in a civil or criminal trial, because it is unlikely criminal litigants would make use of this service.[111]

Another key factor would be whether parties are in a bench trial or jury trial, because group predictions of an individual's decisions are less likely to be accurate than those predicting a group, i.e. jury's decisions.[112] Predictions of the actions of

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[109] Phone interview with Bruce Beron, head of Risk Management Litigation Institute (Jan. 6, 2008).

[110] Nearly all clients of the Risk Management Litigation Institute are corporations handling civil matters. Phone interview with Bruce Beron, head of Risk Management Litigation Institute (Jan. 6, 2008).

[111] In a criminal case there is no settlement range, a plea bargain may be negotiated; but the lack of negotiating leverage would indicate that until empirical evidence indicates otherwise, the use of litigation markets would not be suggested for criminal trials.

[112] Miriam A. Cherry & Robert L. Rogers, *Tiresias and the Justices: Using Information Markets to Predict Supreme Court Decisions*, 100 NW. U. L. REV. 1141, 1160 (2006).

Predicting the outcome of a Supreme Court decision is different from predicting

a group should be more accurate than attempting to predict an individual's decision, because a greater number of decision makers tend to smooth out individual idiosyncratic outcomes, making it more likely that a group prediction will reflect the final decision of a jury.[113]

Lastly, case complexity may affect market efficiency. As inter-relatedness of issues increases, markets must be scaled to include a greater number of participants and may require what is sometimes referred to as "conjoint analysis," which is a tool allowing researchers to determine which variable, or limited combination of variables is most influential on decision making.[114] Conjoint analysis may be used in a preference market by assigning some subgroups a single outcome, other groups a second outcome, and a third set of groups a combination of the two, and assessing the variation between the resulting share values.

## VI. SAMPLE MARKET

### *A. Statement of the Facts*

#### *1. Boyce and His Employment at Wit – the First On-Line Investment Bank*

Plaintiff Boyce was a former consultant of defendant Wit which was the world's first investment bank and brokerage firm dedicated to arranging the offering and trading of securities through the Internet.[115] Boyce began consulting for Wit and, like other Wit employees, was offered a stock option agreement as part of his compensation, in lieu of a large salary.[116] "Boyce was given the option to [buy] 800,000 shares of Wit stock at an exercise price of $1.00 per share" with a ten-year exercise period unless Boyce was terminated, in which case Boyce had one year in which to exercise.[117] The above agreement was memorialized in writing.[118]

Wit subsequently sent Boyce several documents which, in effect, would have

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> whom a President will nominate as a Justice, a task at which the information markets have not been particularly successful. *Part of the reason the market was less successful at predicting John Roberts's nomination was that the decision was made solely by one person* (emphasis added.). The President had a large range of options for potential nominees, the White House disclosed only limited information about the possibilities, and the President had absolute discretion in choosing among the options. While information markets do an excellent job of aggregating information and making predictions, they are not mind-reading devices. Fortunately, that is not necessary for predicting the outcome of Supreme Court decisions. Supreme Court outcomes depend far more on precedent, and they are reached not by one individual's unbounded choices…

*Id.*

[113] *Id.*

[114] *See* Dahan, *supra* note 19.

[115] Boyce v. Soundview Technology Group, Inc., 464 F.3d 376, 379 (2d Cir. 2006).

[116] *Id.*

[117] *Id.*

[118] *Id.* at 380.

altered their agreement, but Boyce refused to sign them.[119] Boyce's employment terminated shortly thereafter.[120] Wit engaged in a series of private financings, selling shares to individual and institutional investors at between $1.00 and $1.50 per share, some institutional investors included premiere Wall Street firms, including Goldman Sachs, Capital Z and Draper Fischer.[121]

*2. Wit Announces its IPO and Refuses to Permit Boyce to Exercise of his Warrants*

On March 12, 1999, Wit announced its intention to launch an initial public offering ("IPO") that it hoped to complete during the second quarter of the year.[122] It did not state how much money Wit intended to raise and did not indicate the price at which Wit anticipated its stock to be offered.[123] At that time, there was, to quote the Second Circuit, a "flurry of IPO-related activities."[124]

*3. The Success of the Wit IPO—Boyce Files Suit*

"Wit successfully brought the Company public on June 4, 1999; the Company sold 7.4 million shares of stock at $8.37 per share, raising $80 million. Wit's stock closed at $14.875 per share on its first day of public trading."[125]

Boyce and Wit could not resolve not resolve their differences.[126] At "trial, Boyce sought to introduce evidence regarding the Company's stock valuation that was dated after April 5, 1999."[127]

*4. Wit's Motions in Limine and the Trial Court's Jury Instructions on*

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[119] *Id.*

[120] *Id.*

[121] *Boyce*, 464 F.3d at 376.

[122] *Id.* at 380.

[123] *Id.*

[124] *Id*. at 381. Investors were investing in Wit because they perceived the stock was going to be worth "a lot more when it went public." *Id.* "Boyce decided to exercise his option to buy 800,000 shares of Wit stock at the $1.00 per share strike price… [and,] on March 31, 1999, [sent Wit] an $800,000 check together with an option exercise form. On April 5, 1999, Wit rejected Boyce's check and exercise form." *Id.* He was told "that his attempted exercise was untimely" because "he had not exercised the option within [thirty] days of his termination." *Id.* The thirty day exercise period was set forth in the documents that Wit had sent to Boyce that he refused to sign. *Id.*

[125] *Id.* Thereafter, within just a few weeks of IPO date, the stock was trading above $35. *Id.*

[126] *Id.* On March 27, 2003, Boyce filed suit against Wit, alleging it breached the contract resulting from its April 5, 1999, refusal to allow him to exercise and Wit argued that Boyce had misused his expense account and had been terminated for cause. *Id.* Wit, however, was unable to produce any documentation regarding a "for cause" termination and Boyce argued the expense account argument was wholly contrived. *Id.*

[127] *Boyce*, 464 F.3d at 381-82. Boyce attempted "to introduce evidence of Wit's second amended S-1" which was filed with the SEC on May 4, 1999 and "documents showing the price of Wit's stock the day of its IPO, June 4, 1999." *Id.* Boyce tried to introduce "documents showing the range of prices at which Wit's common stock was publicly traded in 2003" and "expert testimony from an appraisal specialist who concentrated in the valuation of corporations, and who, at a hearing, testified that, in making his valuation, he considered the IPO offering price as a 'very good measure as to the market's perception of the fair value of the stock.'" *Id.*

*Damages*

"Wit filed several motions *in limine*, seeking the exclusion of post-April 5, 1999, evidence" and the trial "court decided that, although it would allow evidence showing what 'knowledgeable investors anticipated the future conditions and performance [of the company] would be at the time of the breach,'[128] it would not allow in any evidence related to events after April 5, 1999."[129]

*5. Evidence at Trial*

Wit objected when Boyce tried to introduce the Company's amended S-1 and the trial judge refused to admit it because it was dated after April 5, 1999; however, the amended S-1 contained financial information from before April 5. The judge stymied Boyce's examination of Wit insiders by restricting his inquiry to their "pre-April 5th knowledge of the amount of money Wit sought to raise in its IPO."[130] Wit's expert argued that the stock's fair market value on April 5, 1999 supported Wit's position that the stock's value at the time of the breach was $1.50 based on the Company's private placement of block sales just prior to April 5th to three institutional investors.[131]

*6. The Trial Outcome and Ensuing Appeal by Boyce*

The jury found that Wit breached its stock option contract with Boyce and determined Boyce was entitled to $400,000 in damages. Boyce immediately moved for a new trial and the district judge denied the motion.[132] Once appealed, the Second Circuit began its analysis observing "that in a breach of contract case, damages are calculated at the time of the breach,"[133] and that contract breach damages "should put the plaintiff in the same economic position he would have" been in if "the breaching party [had] performed the contract."[134] It observed that although all parties agreed that Boyce's damages were to be measured as of April

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[128] *Id.*

[129] *Id.*

[130] *Id.* at 382. On Wit's defense case, the trial judge's evidentiary rulings precluded Boyce from securing answers to critical questions regarding how much money the company intended to raise. *Id.*

[131] *Id*. at 383. Boyce tried to introduce the $80 million figure included in the preliminary S-1, arguing, contrary to Wit, that this was not really a "filler" number, but, rather, was the real amount of money Wit intended to raise through its IPO. *Id.* Admission of this document would have challenged the credibility of Wit's officers who testified they did not know how much money the Company sought to raise. *Id.* The Court refused to permit the S-1 to be introduced. *Id.*

[132] *See id.* at 384. The district judge rejected Boyce's three main arguments that the court improperly "precluded Boyce's 'forward looking' evidence and improperly charged the jury regarding damages; (2) that the court's 'wrongdoer rule' jury instruction was incorrect; and (3) that the court improperly excluded evidence dated after April 5, 1999." *Id.* (citing Boyce v. Soundview Tech. Group, Inc., 2004 WL 2334081, at 1 (S.D.N.Y. Oct. 14, 2004)).

[133] *See* 464 F.3d at 384 (citing Lucente v. Int'l Bus. Machs. Corp., 310 F.3d 243, 262-63 (2d Cir. 2002); Hermanowski v. Acton Corp., 580 F. Supp. 140, 145 (E.D.N.Y. 1983), *aff'd in relevant part,* 729 F.2d 921 (2d Cir. 1984) (per curiam)).

[134] *See* 464 F.3d at 384-85 (quoting Oscar Gruss & Son, Inc. v. Hollander, 337 F.3d 186, 196 (2d Cir. 2003)).

5, 1999, the real argument was over how to value Wit's stock on April 5th, for purposes of determining damages.[135] Specifically it observed that if Wit were a publicly traded stock, the determination would just be the mean between the highest and lowest quoted selling prices on the public exchange where the stock traded. Since Wit was not publicly traded at the time of the breach, even though "they were on their way to being so," valuing the Company's stock would not be "as straightforward."[136]

*7. Evidentiary Rulings*

The Second Circuit rejected the district court's "bright line" approach which excluded "all evidence of the value of the stock *dated* after April 5, 1999," merely because New York courts reject hindsight evidence.[137] It concluded that the district court had "excluded admissible evidence tending to show economic conditions and performance during the relevant time period" by using an overly mechanical test which had the effect of denying Boyce of the "full benefit of his bargain,"[138] preventing the primary purpose of damages from being realized, i.e., "to put a wronged party in as good a position as if the breach did not occur."[139]

The Second Circuit observed that although "an arm's length transaction-the so-called "willing buyer-willing seller" test-is the best evidence of fair market value," it is not the only such evidence and that determining value is a factual inquiry.[140] The court cited numerous cases in which either a measure other than

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[135] *See id.* at 385.

[136] *Id.* Boyce argued the district court wrongly excluded evidence about the value of the stocks and erred in excluding one jury instruction and misinforming the jury on another instruction, adversely affecting the jury's calculation of damages, warranting a new trial. *Id.*

[137] *Id.* at 386. (quoting *Boyce,* 2004 WL 2334081, at 2 (quoting *Oscar Gruss,* 337 F.3d at 196)).

[138] *Id*.

[139] *Id.* In particular the Second Circuit observed:

> The clearest example of the overreach of the "bright line" ruling is the court's exclusion of the amended S-1: although dated May 4, 1999, the amended S-1 contained Wit's first quarter financial statements, prepared as of March 31, 1999. Thus, at a minimum, the jury was precluded from considering Wit's balance sheet and income statement-permissible forward-looking evidence that would aid a knowledgeable investor in anticipating the future conditions of the Company and in valuing Wit's stock on April 5th. Because the Company was in the midst of going public, requiring it to (a) compile and finalize its financial statements for inclusion in its prospectus, (b) determine how much money was feasible to raise, and (c) decide the initial offer price of its stock, the financial information contained in the May 4, 1999, amended S-1 was highly relevant and material to Boyce's case. We disagree with the district judge's conclusion that the amended S-1 was speculative or wishful thinking. In our view, the May 4th S-1 contained primary evidence that the fact finder could have utilized in determining the Company's stock value. The exclusion of the amended S-1s defeated Boyce's efforts to prove the fair market value of the Company's stock at the time of Wit's breach.

*Id.*

[140] *Boyce*, 464 F.3d at 387; *see* Am. Soc'y of Composers, Authors & Publishers v. Showtime/The Movie Channel, Inc., 912 F.2d 563, 569 (2d Cir. 1990); *see* Silverman v. Comm'r*,* 538 F.2d 927, 933 (2d Cir. 1976) (discussing valuation for gift tax purposes). That is precisely why the court noted that a valuation determination "is one that is entitled to be made on all the elements of the particular case.

fair market value was applied or where evidence beyond the date of a breach or other key transactional event was used to determine fair market value.[141]

> The court rejected Wit's reliance on insider sales, noting that they lacked "the elements of an arm's length transaction, making reliance on such sales questionable" and noting that the district "judge should have considered the nature of Wit's pre-IPO, pre-breach stock sales to employees and institutional investors in weighing the evidentiary relevance of these sales for establishing the stock's fair market value.[142] Turning back to the S-1, the Second Circuit explained that what was relevant was that the information in the statements concerned Wit's pre-breach financial picture, thus compromising "clearly permissible forward-looking evidence.[143]

### *8. The "Knowledgeable Investor" Jury Instruction*

The Second Circuit held that the information about Wit's initial public offering converged with what Boyce anticipated the future conditions and performance of Wit would be, as of the breach date.[144] Thus, it concluded, Boyce

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Valuation is ... necessarily an approximation." *Silverman,* 538 F.2d at 927 (citations omitted; emphasis added; ellipses in original); *see also* Eisenberg v. Comm'r, 155 F.3d 50, 53 (2d Cir. 1998) (noting that for closely held corporations for which there is no public trading market, valuation of stock is based on a variety of factors, and this concept is not limited only to tax matters).

[141] *Boyce*, 464 F.3d at 388. The Second Circuit referenced Wit's "imminent entrance into the public market at the time of its breach to Boyce" and the case law "suggesting that the willing buyer-willing seller test is not the exclusive method for determining value…" *Id.* at 388-89. This Court has noted that, while it generally relies on fair market value as a measure of property value, in certain "circumstances other measures of value may more accurately" serve the purpose for which valuation is required. United States v. Boccagna, 450 F.3d 107, 116 (2d Cir. 2006); *see also* BFP v. Resolution Trust Corp., 511 U.S. 531, 537 (1994) (discussing use of foreclosure price as measure of value in bankruptcy proceeding); United States v. Simmonds, 235 F.3d 826, 832 (3d Cir. 2000) (using replacement value rather than fair market value in calculating restitution); *cf.* Sarrouf v. New England Patriots Football Club, Inc., 492 N.E.2d 1122, 1127-28 (Mass. 1986).

[142] *Boyce*, 464 F.3d at 389. The Supreme Court's endorsement of the "arm's length transaction" test as the best evidence of fair market value evolved from a tax case. *Id*. (citing United States v. Cartwright, 411 U.S. 546, 551 (1973) (quoting Treas. Reg. § 20.2031-1(b)). The Second Circuit relied on a Revenue Ruling in a tax case valuing non-publicly traded stock when it stated: "For closely held corporations ... for which there is no public trading market, valuation of stock is based on a variety of factors." Eisenberg v. Comm'r, 155 F.3d 50, 53 (2d Cir. 1998).

[143] *Boyce*, 464 F.3d at 389. The court continued:

> We are mindful that the district court must walk a delicate balance in allowing the jury to consider only evidence in foresight, and not hindsight. This, however, does not justify the district court judge's imposition of April 5th as a cut-off date for consideration of value evidence. The jury should have been able to make its valuation determination on all relevant elements of the case, whether dated pre-April 5th, April 5th, or, perhaps, some short time period thereafter. Our precedent supports the conclusion that consideration of evidence dated post-April 5th can properly be considered by the fact finder in making this determination without violating the rule against considering evidence in hindsight. However, because the judge abided by his April 5th "bright line" rule without weighing other factors of the case and determining their aggregate significance, we believe Boyce's substantial rights were affected. Thus, Boyce is entitled to a new trial on damages.

*Id.*

[144] *Id.* at 391. The Second Circuit held that "information gathered in anticipation of the IPO and contained in the amended S-1s was relevant to show what a knowledgeable investor anticipated the

was entitled to have the jury instructed with the "knowledgeable investor" instruction. Specifically, he was entitled to have the instruction that "[a] damages award should be based upon what knowledgeable investors anticipated the future conditions and performance would be at the time of the breach."[145]

The Second Circuit concluded that it was confident, on remand, that the district court would "be able to instruct the jury on the proper consideration to be given to evidence that might, at first blush, be considered 'hindsight' evidence . . . ."[146] On remand, Boyce would offer the same evidence, which Wit would seek to keep out.[147]

*B. Sample Litigation Market*

Next is a step-by-step explanation of how to create a litigation market. Using the uncertainties of the case at hand, a market was created, but the case settled confidentially before the market concluded. However, extensive future research will be conducted to determine exactly how accurate market-based predictions can become. The participants in the market were located around the United States. The market was set up on a website which allowed its members to create both public and private markets to determine any outcome people care to predict upon.[148]

In all information markets, participants in the market must be exposed to the material facts of the case. Depending on the availability of participants and their locations, there are a few alternative ways to disseminate such information. Whether participants are engaged online, on the phone, or in person, the market set-up is still the same. Participants will be instructed on how to access the market and will be provided with a user-name to login.

Each possible answer to the question posed by the market is represented as a stock. The following is not meant to be an all-encompassing list of markets, but rather to be a sample of some useful predictions.

1. Market One: Standard of Value
    a. Investment value will be the method of calculating damages;

    b. Fair market value will be the method of calculating

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future conditions and performance of Wit's stock would be at the time of its breach." *Id*.

[145] *Id.*

[146] *Id*. at 391, n.9. The Second Circuit also reversed the district court's improper "wrongdoer rule" instruction, stating that a plaintiff need only demonstrate a "stable foundation for a reasonable estimate," of the damages, noting that Boyce had made his prerequisite by showing that Wit breached its contract with him and, as a result, he is entitled to damages. *Id*. at 391-92. The district court should not have required more of Boyce. *Id*. at 392. Since the district court confused the "wrongdoer rule" instruction and provided the jury with an inadequate understanding of the law, the Second Circuit concluded that a new trial must be granted. *Id.*

[147] *Id.*

[148] The website, www.inklingmarkets.com, offers both private and public markets, and all currency for investment is virtual.

damages;

c. Both standards of value will be presented to the jury.

2. Market Two: Admissibility of Post-Breach Evidence

a. The IPO price will be admitted;

b. The IPO closing price on the first day will be admitted;

c. Evidence of the price at which Boyce intended to sell his shares at will is admitted.

3. Market Three: Jury Verdict

a. Damages will be assessed at a value of 2-7 Million Dollars;

b. Damages will be assessed at a value of 7-12 Million Dollars;

c. Damages will be assessed at a value of 13-18 Million Dollars;

d. Damages will be assessed at a value of 19-24 Million Dollars;

e. Damages will be assessed at a value of 25-30 Million Dollars.

4. Market Four: Settlement Value to Plaintiff

a. Plaintiff should demand a settlement of 2-6 Million Dollars;

b. Plaintiff should demand a settlement of 7-12 Million Dollars;

c. Plaintiff should demand a settlement of 13-18 Million Dollars;

d. Plaintiff should demand a settlement of 19-24 Million Dollars;

e. Plaintiff should demand a settlement of 25-30 Million Dollars.

5. Market Five: Settlement Prediction

   a. This case is likely to settle at no less than 5 Million Dollars;

   b. This case is likely to settle at no less than 10 Million Dollars;

   c. This case is likely to settle at no less than 15 Million Dollars;

   d. This case is likely to settle at no less than 20 Million Dollars;

   e. This case is likely to settle at no less than 25 Million Dollars.

Once the market has closed, its predictions can be made from the price of each security. To gain optimal insight into the predictions of the market, a final survey will be distributed to the participants asking for their assessment of the strengths and weaknesses of the case, as well as final predictions on how accurate they believe the market was as a predictive tool.

*C. Potential Challenges to Predictive Accuracy for Information Markets*

Certain pitfalls and common criticisms regarding the use of prediction markets must be addressed. One concern is a potential bias or misrepresentation of the facts by counsel as they prepare the facts to be relayed to the participants in the market. A second concern is a failure to adequately incentivize participants to predict accurately, particularly with regards to the validity of predictions from play money markets.

The information which participants in the market will see and will hear can be presented in a variety of ways. It is important that traders are provided a blend of court documents, expert testimony, and as objective a statement of facts as possible. In addition to avoiding a distortion of the facts of the case, the other key concern in setting up the market is that traders understand their role in the process.

If the incentive-structure for participants is not clear, or not satisfactory, the predictions generated will become less accurate. The solution for this is to offer a variety of rewards for accuracy and activity.[149] As long as market participants have an incentive to predict accurately, they will perform just as well with play money as if they were investing with their own funds. Recently a study was conducted pitting the accuracy of football predictions from a large real money

[149] Sunstein, *supra* note 51.

market against predictions in a large play money market.[150] The evidence revealed there was not a significant improvement of predictive accuracy when real money was involved.[151]

## VII. CONCLUSION

Prediction markets are gaining popularity and credence in political discourse, the entertainment industry, and within the general corporate sector.[152] The desire to more accurately predict the probability of various outcomes is grounded in the need to make informed, business savvy decisions on issues such as: formulating a budget; assessing strengths and weaknesses of product lines; and determining when to cut off funding to a dying product line or project. Similar considerations arise in litigation; issues of how much to spend can be clarified by projections of predicted jury verdicts, settlements, and methodologies participants believe will be used to calculate losses. Assessing strengths and weakness of legal arguments is also a valuable tool, and qualitative data provided by market participants will further aid this goal. Lastly, a strong indication that a jury disagrees with a position will be a valuable tool in assessing the timing and terms of a settlement.

Other markets have demonstrated a natural selection of traders, which seems quite plausible in litigation markets. Presumably those who are poor prediction-makers will run out of Court Cash and will become uninterested in participating as they perceive their own chances of success and rewards diminishing. At this point the talented traders will essentially be competing with each other, fostering a higher level of competition and thus a more accurate level of predictive accuracy.

Because there are no current litigation markets in use, the design of a market is a very fluid concept and could be adapted to the needs of a particular client. The use of these markets must be tested repeatedly in different scenarios to provide insight into both the most effective method of predicting, and the accuracy of this method over time.

The ability to better quantify uncertainties in litigation and trials will only become more valuable as this research model matures and evolves. Over the last decade, market-based prediction models have outperformed traditional forecasting methods in politics, entertainment and finance. The cost-cutting potential of accurate market predictions coupled with the ever-rising expenses associated with litigation explain why the authors concluded there is a need for these markets.

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[150] Servan et al, *supra* note 18, at 244.

[151] *Id.* The evidence revealed that 65.9% of the real money market's (www.Tradesports.com) favorite teams actually won their games (135 out of 208), and its average pre-game trading price was $65.1 for the favorite team. *Id.* In the play money market (Newsfutures), 66.8% of the favorite teams had victories (139 out of 208), and an average pre-game trading price of $65.6 for the favorite team. *Id.* There was "a close correspondence between the markets' trading prices and the actual frequency of victory in the field. Both types of markets also had almost exactly the same prediction accuracy." *Id*. at 246.

[152] Cherry et al, *supra* note 82.