Prediction Market Results

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A Brief Summary

1. Three Prediction Markets
3. Participants: EMR 13 Students + Teaching Staffs
Question I

- Will Obama be re-elected in the 2012 presidential election?
- EMR 13 Crowd Prediction: 74.43%
- Intrade.com Crowd Prediction: 72.4%
- FiveThirtyEight: 90.9%
- Did an Event Happen? Yes (100%).
Intrade Price Chart - Entire Period

2012.PRES.Obama
Dec 06, 2010 - Nov 07, 2012

Closing Price: 100
Vol: 2.402M

Source: www.intrade.com ©
Intrade Price Chart - Last 40 Days

2012.PRES.OBAMA
Sep 29, 2012 - Nov 07, 2012

Closing Price: 100  Vol: 2.402M

Source: www.intrade.com
FiveThirtyEight Price Chart

90.9% Chance of Winning 9.1%
+13.5 since Oct. 30 -13.5 since Oct. 30

Graph showing price changes from June to Nov.
EMR13: Investment Amount and Frequency

- **Buy (N=65)**

- **Sell (N=33)**

**Investment**
EMR13: Investment Patterns

![Investment Patterns Graph]

- The graph shows investment patterns over the number of days before the election.
- The x-axis represents the number of days before the election, ranging from -25 to 0.
- The y-axis represents the investment amount, ranging from -2000 to 3000.
- Points are marked with blue circles for Buy and red circles for Sell investments.

Key dates shown on the graph:
- 10/12
- 10/22
- 10/27
- 11/01

Factor (type)
- Buy
- Sell
Question II

• Will Obama’s popular vote share be higher than 50%?

• EMR 13 Crowd Prediction: 64.2%

• Iowa Electronic Market Crowd Vote Share Prediction: 50.5%

• FiveThirtyEight Vote Share Prediction: 50.8%

• Did an Event Happen? Yes (100%). Actual Vote Share = 50.5%
Iowa Electronic Market Price Chart

2012 US Presidential Election Vote Share Market

Date

Price
0 10 20 30 40 50 60

LDEM12_VS  UREP12_VS
FiveThirtyEight Price Chart

50.8% +0.4 since Oct. 30
Popular vote

48.3% -0.2 since Oct. 30

54%
50%
46%
EMR13: Investment Amount and Frequency

**Investment**

- **Buy (N=62)**
- **Sell (N=36)**

Average Investment

- 0 500 1000 1500 2000 2500
EMR13: Investment Patterns

![Graph showing investment patterns before the election day.](image-url)
Question III

- Will Brown be re-elected in the 2012 Senate race in Massachusetts?
- EMR 13 Crowd Prediction: 35.26%
- Intrade.com Crowd Prediction: 20%
- FiveThirtyEight: 6%
- Did an Event Happen? No (0%).
EMR 13 Prediction Price Chart
Intrade Price Chart - Last 40 Days

MA.SENATE.2012.REP
Oct 09, 2012 - Nov 07, 2012

Source: www.intrade.com ©
# FiveThirtyEight Price Chart

## Massachusetts

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<tr>
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<th>REP</th>
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<td><strong>Chance of winning</strong></td>
<td>94%</td>
<td>6%</td>
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EMR13: Investment Amount and Frequency

![Graph showing investment amount and frequency for 'Buy' and 'Sell'.]
EMR13: Investment Amount and Frequency

The graph shows the relationship between the number of days before the election and the investment amount. The x-axis represents the number of days before the election, ranging from -25 to 0. The y-axis represents the investment amount, ranging from -1500 to 25. The data points are color-coded to indicate whether the investment is a buy (blue) or a sell (red). The dates 10/12, 10/22, 10/27, and 11/1 are marked on the graph, indicating specific points in time for analysis.
How Prediction Market Works

• In typical stock markets, a human buyer must be matched with a human seller of stock.

• For example, if Ken is selling 50 shares at $50/share, there must be a buyer willing to pay that price and vice versa.

• The price of the stock itself is based on the supply and demand of the finite number of shares in play.

• These transactions are all handled by computer.
How Prediction Market Works

- **Inkling Markets** uses an “automated market maker” to control trading.
- **Inkling** does not force a buyer to be matched with a seller, and vice versa.
- From a trader’s perspective, Inkling Markets is always the buyer and seller of shares.
- **Inkling Markets** sets the stock price according to demand or lack thereof.
- If a trader buys shares, there is demand for the stock and its price goes up.
- If a trader sells, there is a lack of demand and the price goes down.
How Prediction Market Works

- Prediction < Your Belief
- Crowd Prediction on Obama
- Your private belief on Obama
How Prediction Market Works

- **Prediction < Your Belief**
- **Prediction > Your Belief**

Crowd Prediction on Obama

Your private belief on Obama

Probability Obama wins

- 57%
- 50%
Your bet: Obama's winning probability at 53%
If Obama wins election...

Probability Obama wins

0% 53% 100%

Won't Happen Profit Will happen
Payoffs

If Obama loses election...

Won't Happen

Loss

Will happen

0%

53%

100%

Probability Obama wins
Payoffs

Case I

If Obama wins election:

\[
\text{Payoff} = 100 - 60 + 1 \times (60 + 60 (1 - 0.53))
\]

Remaining Cash

Event happens

Investment Return

= 128.2
Case II

If Obama **loses** election:

\[
\text{Payoff} = 100 - 60 + 0 \times (60 + 60 (1 - 0.53))
\]

\[
= 40
\]
Payoffs - IEM

2012 US Presidential Election Winner Takes All Market

DEM12_VTA  REP12_VTA

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Frequency of Investment
Investment Returns

![Investment Returns Graph]

- Investment Returns
- Average Returns
**Investment Returns**

![Graph showing investment returns with ranking in investment frequency on the X-axis and investment returns on the Y-axis. The graph includes bars for both loss and profit, with colors red for loss and green for profit.](image)
**Obama Winning Chance: Comments**

- **10/22.** “Strong debate performance today” → Buy Obama shares ($275.99)

- **10/29.** “Recent polls show a tighter race than expected” → Sell Obama shares ($1088.85)

- **11/2.** “This election will surely be within a percentage or two. This is way high for Obama” → Sell Obama shares ($1060.38)
10/11. “Gonna take it home” → Buy Obama share ($774.74)
Brown Winning Chance: Comments

- 10/29. “37% is an insanely unrealistic prediction. Warren will probably win, but not by that margin, in my opinion anyway” → Buy Brown share ($341.06)

- 11.2. “Nate Silver puts Brown’s chance at 5%” → This participant sold $3,633.02 amount of Brown shares between 11.1 ∼ 11.5. But this participant bought $728.99 amount of Brown shares in 11.5 as well.
Prediction Markets v.s. Polls

• “If the election were held today, who would you vote for?”

• “Who do you think will win the upcoming election?”

• Both questions strive to aggregate the information that is often widely dispersed among economic actors.

• Which one is a better method?
National Polls
Prediction Markets: Intrade

2012.PRES. OBAMA
Sep 29, 2012 - Nov 07, 2012

Source: www.intrade.com
State Polls: Pennsylvania
Prediction Markets: Pennsylvania
Prediction Markets: Ohio

OH.2012.DEM
Oct 09, 2012 - Nov 07, 2012

Source: www.intrade.com ©
State Polls: Florida
Prediction Markets: Florida
State Polls: Virginia
Prediction Markets: Virginia
Prediction Markets v.s. Polls

- On average, prediction markets perform better than polls. Why?
- Self Selection
- Incentives
- Efficient Information Aggregation
- Larger Samples
What went wrong with polls in 2012?

### Pollster Accuracy and Bias, 2012 Presidential Election

Likely Voters Polls in Last 21 Days of Campaign

Minimum 5 Polls

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<th>Pollster</th>
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What went wrong with polls in 2012?

- Polls are an indicator of what’s going on with voters.
- Pollsters and organizations make predictions based on polls and other factors.
- But polls may not be the reflection of reality anymore. There may be a strategic purpose to manipulate the procedures of polling.
What went wrong with polls in 2012?
What went wrong with polls in 2012?

- Dick Morris, before the election: “We’re going to win by a landslide. It will be the biggest surprise in recent American political history. It will rekindle the whole question as to why the media played this race as a nail biter.”

- Dick Morris, after the election: “I was dead wrong.” BUT... “I predicted Romney’s landslide to help him win.”

- How do polls affect the election outcome? What factors would be affected by polls?
Conclusion

- Designing a mechanism that could efficiently aggregate dispersed individual preference and information will be the most important thing both in politics and business.

- Prediction markets often have a number of attractive features: quickly incorporate new information, largely efficient, impervious to manipulation.

- Sometimes fail due to a lack of traders or trading based on private information.

- Recent use to test economic models (Snowberg, Wolfers, Zitzewitz, 2012 NBER Working Paper).