

***Online Appendix for  
Designing Prediction Markets to Forecast Multi-Stage Elections:  
Market Design for the 2022 French Presidential Election***

Joyce E. Berg, Thomas S. Gruca and Thomas A. Rietz

February 2021

**AI: IEM PROSPECTUS: FR22R1\_WTA**

**2022 FRENCH PRESIDENTIAL ELECTION ROUND 1 WINNER-TAKES-ALL MARKET**

On Friday, August 27, 2021, at 11:30am CST, the Iowa Electronic Market (IEM) will open trading in a winner-takes-all market based on the first round of voting in the 2022 French Presidential election.

If the first round does not take place on April 10, 2022, all dates for reporting and payoffs in this market will be adjusted to coincide with the actual date of the first round of voting.

The payoffs in this market will be based on whether any candidate receives more than 50% of the popular vote based on the first round of balloting, currently scheduled for April 10, 2022

This document describes that market and should be viewed as a supplement to the Trader's Manual. Except as specified in this prospectus, trading rules for this market are the same as those specified in the Trader's Manual for the Iowa Electronic Market.

**Contracts**

The financial contracts initially traded in this market are:

<u>Code</u>	<u>Contract Description</u>
R1Macron	\$1 if Emmanuel Macron receives more than 50% of the popular vote in the first round of voting, \$0 otherwise.

R1LePen	\$1 if Marine Le Pen receives more than 50% of the popular vote in the first round of voting, \$0 otherwise.
R1Unnamed	\$1 if an unnamed candidate receives more than 50% of the popular vote in the first round of voting, \$0 otherwise.
R1Runoff	\$1 if no candidate receives more than 50% of the popular vote in the first round of voting, \$0 otherwise.

### **Determination of Liquidation Values**

This is a winner-takes-all market. The payoff will be determined by which, if any, candidate receives more than 50% of the popular vote in the first round of voting currently scheduled for April 10, 2022.

Contracts associated with a candidate who does not receive more than 50% of the popular vote in the first round of voting will pay off \$0. If no candidate receives more than 50% of the popular vote in the first round of voting, there will be a runoff election and the R1Runoff contract will pay \$1 and all other contracts will pay \$0.

The election data posted on the New York Times official website at 5pm CST on Monday, April 11, 2022 or as soon after as available, will be the official source used to determine payoffs. In the event that the popular vote is not reported at that website by midnight, Monday, April 11, 2022, the Washington Post official website will become the official source. Should neither source report the popular vote by midnight Monday, the information reported in the print version of the New York Times on Tuesday, April 12, 2022 or as soon thereafter as reported, will be used. In the event that the election is delayed or postponed, liquidation will take place in a timely fashion after the close of polling sites.

Liquidation formulas can be viewed while you are logged into the IEM trading system by clicking on the market name, FR22R1\_WTA, at the upper right hand corner of the market

window. The judgment of the IEM Governors and Directors will be final in resolving questions of typographical or clerical errors and ambiguities.

### **Contract Spin-Offs**

The Directors of the IEM reserve the right to introduce new contracts to the market as spin-offs of existing contracts. When a contract spin-off occurs, an original contract will be replaced by two or more new contracts which subdivide the payoff space of the original contract. For instance, the contract R1Unnamed could be split into two contracts: R1Named where “Named” denotes a candidate other than Emmanuel Macron and Marine Le Pen and a new R1Unnamed that no longer includes the newly named candidate.

No holder of the pre-spinoff contracts will be adversely affected. Traders will receive the same number of each of the new contracts as they held in the original, and the sum of the liquidation values of the new contracts will equal the liquidation value of the original.

Outstanding bids and asks for the contract which is to be split will be canceled just prior to the spin-off.

Decisions to spin-off a contract will be announced at least two days in advance of the spin-off. The new contract names, the specifications regarding liquidation values and the timing of the spin-off will be included in the announcement. This announcement will appear as an Announcement on your WebEx login screen.

### **Contract Bundles**

Fixed price contract bundles consisting of one share of each of the contracts in this market can be purchased from or sold to the IEM system at any time. The price of each fixed price contract bundle is \$1.00. Because exactly one of the listed outcomes will result from the

first round of voting on April 10, 2022, the total payoff from holding a fixed price contract bundle until the market closes is \$1.00.

To buy or sell fixed price contract bundles from the system, use the "Market Orders" option from the Trading Console. Select "FR22R1\_WTA (buy at fixed price)" from the Market Orders list to buy bundles. Select "FR22R1\_WTA (sell at fixed price)" to sell bundles.

Bundles consisting of one share of each of the contracts in this market may also be purchased and sold at current aggregate market prices rather than the fixed price of \$1.00. To buy a market bundle at current ASK prices, use the "Market Order" option as above but select "FR22R1\_WTA (buy at market prices)." To sell a bundle at current market BID prices, select "FR22R1\_WTA (sell at market prices)."

Bundle purchases will be charged to your cash account and bundle sales will be credited to your cash account.

This market will remain open until contract liquidation. Liquidation values will be credited to the cash accounts of market participants.

### **Market Access**

Current and newly enrolled IEM traders with U.S. dollar accounts will automatically be given access rights to trade in the 2022 French Presidential Election Round 1 Winner-takes-all Market. Access to this market is achieved by logging into the IEM and choosing "FR22R1\_WTA" from the Navigation Bar.

Funds in a trader's cash account are fungible across markets so new investment deposits are not required. Additional investments up to the maximum of \$500 can be made at any time by using the "Adding to Your Investment" link found under "My Account" while logged into the

IEM software. New traders can open accounts using the "Open An Account" button found at the IEM website, <https://iem.uiowa.edu>. There is a one-time account registration fee of \$5.00, and investments are limited to the range of \$5.00 to \$500.

Requests to withdraw funds may be submitted at any time by completing the IEM's Online Withdrawal Request form. Additional information about requesting withdrawals is available at the IEM website at <https://iemweb.biz.uiowa.edu/accounts/withdrawals.html>.

## **A2: IEM PROSPECTUS: FR22\_CAND**

### **2022 FRENCH PRESIDENTIAL ELECTION RUNOFF CANDIDATES WINNER-TAKES-ALL MARKET**

On Friday, August 27, 2021, at 11:30am CST, the Iowa Electronic Market (IEM) will open trading in a winner-takes-all market based on the first round of voting in the 2022 French Presidential election. The payoffs in this market will be based on which two candidates will participate in the second round of voting, currently scheduled for April 24, 2022.

Contract liquidation values in this market will be determined by the outcome of the first round of voting in the 2022 French Presidential election, currently scheduled for April 10, 2022. At market open, there are five contracts in this market representing five possible unique outcomes, representing pairs of candidates who would participate in the second round of the election (the "runoff" round). Other contracts may be added to this market according to the contract spin-off procedure described below. The liquidation value of the contract which represents the actual outcome of the first round of voting in the 2022 French Presidential election will be \$1.00. All other contracts will have a value of \$0.00.

This document describes that market and should be viewed as a supplement to the Trader's Manual. Except as specified in this prospectus, trading rules for this market are the same as those specified in the Trader's Manual for the Iowa Electronic Market.

## Contracts

The financial contracts initially traded in this market are:

Code	Contract Description
R_MacxLeP	\$1 if there is a runoff between Emmanuel Macron and Marine Le Pen, \$0 otherwise.
R_MacxUnn	\$1 if there is a runoff between Emmanuel Macron and an unnamed candidate, \$0 otherwise.
R_LePxUnn	\$1 if there is a runoff between Marine Le Pen and an unnamed candidate, \$0 otherwise.
R_UnnxUnn	\$1 if there is a runoff between two unnamed candidates, \$0 otherwise.
R_None	\$1 if there is no runoff election, \$0 otherwise.

## Determination of Liquidation Values

This is a winner-takes-all market. The payoff will be determined by which candidates qualify for the runoff election. If a candidate receives more than 50% of the popular vote in the first round of voting, there will be no runoff election and the R\_None contract will pay \$1.00 and all other contracts will pay \$0.00.

The election data posted on the New York Times official website at 5pm CST on Monday, April 11, 2022 or as soon after as available, will be the official source used to determine payoffs. In the event that the popular vote is not reported at that website by midnight, Monday, April 11, 2022, the Washington Post official website will become the official source. Should neither source report the popular vote by midnight Monday, the information reported in the print version of the New York Times on Tuesday, April 12, 2022 or as soon thereafter as reported, will

be used. In the event that the election is delayed or postponed, liquidation will take place in a timely fashion after the close of polling sites.

Liquidation formulas can be viewed while you are logged into the IEM trading system by clicking on the market name, FR22\_CAND, at the upper right hand corner of the market window. The judgment of the IEM Governors and Directors will be final in resolving questions of typographical or clerical errors and ambiguities.

### **Contract Spin-Offs**

The Directors of the IEM reserve the right to introduce new contracts to the market as spin-offs of existing contracts. When a contract spin-off occurs, an original contract will be replaced by two or more new contracts which subdivide the payoff space of the original contract. For instance, we could introduce a new named candidate by splitting the following contracts: (1) The contract R\_MacxUnn would be split into two contracts: R\_MacxNew which denotes Macron against a newly named candidate in the round 2 election and a new R\_MacxUnn which denotes Macron against a remaining unnamed candidate. (2) The contract R\_LePxUnn would be split into two contracts: R\_MePxNew which denotes Le Pen against a newly named candidate in the round 2 election and a new R\_LePxUnn which denotes Le Pen against a remaining unnamed candidate. (3) R\_UnnxUnn would be split into two contracts: R\_NewxUnn which denotes a newly named candidate against a remaining unnamed candidate and a new R\_UnnxUnn which denotes two remaining unnamed candidates against each other.

No holder of the pre-spinoff contracts will be adversely affected. Traders will receive the same number of each of the new contracts as they held in the original, and the sum of the liquidation values of the new contracts will equal the liquidation value of the original.

Outstanding bids and asks for the contract which is to be split will be canceled just prior to the spin-off.

Decisions to spin-off a contract will be announced at least two days in advance of the spin-off. The new contract names, the specifications regarding liquidation values and the timing of the spin-off will be included in the announcement. This announcement will appear as an Announcement on your WebEx login screen.

### **Contract Bundles**

Fixed price contract bundles consisting of one share of each of the contracts in this market can be purchased from or sold to the IEM system at any time. The price of each fixed price contract bundle is \$1.00. Because exactly one of the listed outcomes will result from the first round of voting, the total payoff from holding a fixed price contract bundle until the market closes is \$1.00.

To buy or sell fixed price contract bundles from the system, use the "Market Orders" option from the Trading Console. Select "FR22\_CAND (buy at fixed price)" from the Market Orders list to buy bundles. Select "FR22\_CAND (sell at fixed price)" to sell bundles.

Bundles consisting of one share of each of the contracts in this market may also be purchased and sold at current aggregate market prices rather than the fixed price of \$1.00. To buy a market bundle at current ASK prices, use the "Market Order" option as above but select "FR22\_CAND (buy at market prices)." To sell a bundle at current market BID prices, select "FR22\_CAND (sell at market prices)."



Bundle purchases will be charged to your cash account and bundle sales will be credited to your cash account.

This market will remain open until contract liquidation. Liquidation values will be credited to the cash accounts of market participants.

### **Market Access**

Current and newly enrolled IEM traders with U.S. dollar accounts will automatically be given access rights to trade in the 2022 French Presidential Election Runoff Candidates Winner-takes-all Market. Access to this market is achieved by logging into the IEM and choosing "FR22\_CAND" from the Navigation Bar.

Funds in a trader's cash account are fungible across markets so new investment deposits are not required. Additional investments up to the maximum of \$500 can be made at any time by using the "Adding to Your Investment" link found under "My Account" while logged into the IEM software. New traders can open accounts using the "Open An Account" button found at the IEM website, <https://iem.uiowa.edu>. There is a one-time account registration fee of \$5.00, and investments are limited to the range of \$5.00 to \$500.

Requests to withdraw funds may be submitted at any time by completing the IEM's Online Withdrawal Request form. Additional information about requesting withdrawals is available at the IEM website at <https://iemweb.biz.uiowa.edu/accounts/withdrawals.html>.

### **AIII: IEM PROSPECTUS: FR22R2\_WTA**

#### **2022 FRENCH PRESIDENTIAL ELECTION RUNOFF WINNER-TAKES-ALL MARKET**

On Friday, August 27, 2021, at 11:30am CST, the Iowa Electronic Market (IEM) will open trading in a winner-takes-all market based on the second round of voting (the runoff election) in the 2022 French Presidential election currently scheduled for April 24, 2022.

Contract liquidation values in this market will be determined by the outcome of the second round of voting in the 2022 French Presidential election currently scheduled for April 24, 2022. At market open, there are four contracts in this market representing four possible unique outcomes. Other contracts may be added to this market according to the contract spin-off procedure described below. The liquidation value of the contract which represents the actual outcome of the second round of voting in the 2022 French Presidential election will be \$1.00. All other contracts will have a value of \$0.00.

This document describes that market and should be viewed as a supplement to the Trader's Manual. Except as specified in this prospectus, trading rules for this market are the same as those specified in the Trader's Manual for the Iowa Electronic Market.

#### **Contracts**

The financial contracts initially traded in this market are:

<u>Code</u>	<u>Contract Description</u>
R2_MacDLeP	\$1 if Emmanuel Macron defeats Marine Le Pen in the second round of voting, \$0 otherwise.
R2_MacDUnn	\$1 if Emmanuel Macron defeats an unnamed candidate in the second round of voting, \$0 otherwise.
R2_LePDUnn	\$1 if Marine Le Pen defeats an unnamed candidate in the second round of voting, \$0 otherwise.
R2_ELSE	\$1 for all other outcomes, \$0 otherwise.

## **Determination of Liquidation Values**

This is a winner-takes-all market. The payoff will be determined by which candidate wins the runoff election to be held on April 24, 2022. If there is no second round of voting, the contract R2\_ELSE pays \$1 and all other contracts pay \$0.

The election data posted on the New York Times official website at 5pm CST on Monday, April 25, 2022 or as soon after as available, will be the official source used to determine payoffs. In the event that the popular vote is not reported at that website by midnight, Monday, April 25, 2022, the Washington Post official website will become the official source. Should neither source report the popular vote by midnight Monday, the information reported in the print version of the New York Times on Tuesday, April 26, 2022 or as soon thereafter as reported, will be used. In the event that the election is delayed or postponed, liquidation will take place in a timely fashion after the close of polling sites.

Liquidation formulas can be viewed while you are logged into the IEM trading system by clicking on the market name, FR22R2\_WTA, at the upper right hand corner of the market window. The judgment of the IEM Governors and Directors will be final in resolving questions of typographical or clerical errors and ambiguities.

## **Contract Spin-Offs**

The Directors of the IEM reserve the right to introduce new contracts to the market as spin-offs of existing contracts. When a contract spin-off occurs, an original contract will be replaced by two or more new contracts which subdivide the payoff space of the original contract. For instance, we could introduce a new named candidate by splitting the following contracts: (1) The contract R2\_MacDunn would be split into two contracts: R2\_MacDNew

which denotes Macron defeating a newly named candidate (“New”) and a new R2\_MacDUnn which denotes Macron defeating a remaining unnamed candidate. (2) The contract R2\_LePDUnn would be split into two contracts: R2\_LePDNew which denotes Le Pen defeating a newly named candidate (“New”) and a new R2\_LePDUnn which denotes Le Pen defeating a remaining unnamed candidate. (3) R2\_ELSE would be split into R2\_NewDUnn which denotes the newly named candidate (“New”) defeating a remaining unnamed candidate and a new R2\_Else which denotes any other outcome.

The first round of voting (currently scheduled for April 10, 2022) will determine which (if any) candidates are in the second round of voting, currently scheduled for April 24, 2022. If there is no second round of voting due to a candidate receiving more than 50% in the first round of voting, the IEM will liquidate the market with R2\_Else paying \$1.

No holder of the pre-spinoff contracts will be adversely affected. Traders will receive the same number of each of the new contracts as they held in the original, and the sum of the liquidation values of the new contracts will equal the liquidation value of the original.

Outstanding bids and asks for the contract which is to be split will be canceled just prior to the spin-off.

Decisions to spin-off a contract will be announced at least two days in advance of the spin-off. The new contract names, the specifications regarding liquidation values and the timing of the spin-off will be included in the announcement. This announcement will appear as an Announcement on your WebEx login screen.

## **Contract Bundles**

Fixed price contract bundles consisting of one share of each of the contracts in this market can be purchased from or sold to the IEM system at any time. The price of each fixed price contract bundle is \$1.00. Because exactly one of the listed outcomes will result from the second round of voting on April 24, 2022, the total payoff from holding a fixed price contract bundle until the market closes is \$1.00.

To buy or sell fixed price contract bundles from the system, use the "Market Orders" option from the Trading Console. Select "FR22R2\_WTA (buy at fixed price)" from the Market Orders list to buy bundles. Select "FR22R2\_WTA (sell at fixed price)" to sell bundles.

Bundles consisting of one share of each of the contracts in this market may also be purchased and sold at current aggregate market prices rather than the fixed price of \$1.00. To buy a market bundle at current ASK prices, use the "Market Order" option as above but select "FR22R2\_WTA (buy at market prices)." To sell a bundle at current market BID prices, select "FR22R2\_WTA (sell at market prices)."

Bundle purchases will be charged to your cash account and bundle sales will be credited to your cash account.

This market will remain open until contract liquidation. Liquidation values will be credited to the cash accounts of market participants.

## **Market Access**

Current and newly enrolled IEM traders with U.S. dollar accounts will automatically be given access rights to trade in the 2022 French Presidential Election Runoff Winner-takes-all

Market. Access to this market is achieved by logging into the IEM and choosing "FR22R2\_WTA" from the Navigation Bar.

Funds in a trader's cash account are fungible across markets so new investment deposits are not required. Additional investments up to the maximum of \$500 can be made at any time by using the "Adding to Your Investment" link found under "My Account" while logged into the IEM software. New traders can open accounts using the "Open An Account" button found at the IEM website, <https://iem.uiowa.edu>. There is a one-time account registration fee of \$5.00, and investments are limited to the range of \$5.00 to \$500.

Requests to withdraw funds may be submitted at any time by completing the IEM's Online Withdrawal Request form. Additional information about requesting withdrawals is available at the IEM website at <https://iemweb.biz.uiowa.edu/accounts/withdrawals.html>.