

<http://www.policyanalysismarket.org/>

## *A Market in the Future of the Middle East*



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The Policy Analysis Market will provide insight into the interactions among Middle Eastern and U.S. interests and policy decisions.

Trading begins October 1, trader registration begins August 1.

#### **Concept Overview**

Analysts often use prices from various markets as indicators of potential events. The use of petroleum futures contract prices by analysts of the Middle East is a classic example. The Policy Analysis Market (PAM) refines this approach by trading futures contracts that deal with underlying fundamentals of relevance to the Middle East. Initially, PAM will focus on the economic, civil, and military futures of Egypt, Jordan, Iran, Iraq, Israel, Saudi Arabia, Syria, and Turkey and the impact of U.S. involvement with each.

The contracts traded on PAM will be based on objective data and observable events. These contracts will be valuable because traders who are registered with PAM will use their money to acquire contracts. A PAM trader who believes that the price of a specific futures contract under-predicts the future status of the issue on which it is based can attempt to profit from his belief by buying the contract. The converse holds for a trader who believes the price is an over-prediction – she can be a seller of the contract. This price discovery process, with the prospect of profit and at pain of loss, is at the core of a market's predictive power.

The issues represented by PAM contracts may be interrelated; for example, the economic health of a country may affect civil stability in the country and the disposition of one country's military may affect the disposition of another country's military. The trading process at the heart of PAM allows traders to structure combinations of futures contracts. Such combinations represent predictions about interrelated issues that the trader has knowledge of and thus may be able to make money on through PAM. Trading these trader-structured derivatives results in a substantial refinement in predictive power.

The PAM trading interface presents A Market in the Future of the Middle East. Trading on PAM is placed in the context of the region using a trading language designed for the fields of policy, security, and risk analysis. PAM will be active and accessible 24/7 and should prove as engaging as it is informative.

### An Example PAM Futures and Derivatives Contracts

To illustrate the sort of contracts tradable on PAM, consider two issues tied to the now-historic case of pending hostilities between the United States and Iraq: (a) whether or not the Jordanian monarchy would be overthrown during hostilities between the United States and Iraq and (b) the ability of the Iraqi regime to persist for more than one month of hostilities. Each of these issues has two states; they occur or do not occur. A pair of futures contracts can therefore be defined for each issue and only one of each pair can end up as true:

- Assigning the shorthand A to the Jordanian issue, A means overthrow occurs and  $\sim A$  means overthrow does not occur.
- Assigning the shorthand B to the Iraqi issue, B means the regime persists after one month of hostilities and  $\sim B$  means that it does not persist.

To illustrate why such futures contracts would be traded, consider two PAM traders: a specialist in Jordanian domestic affairs and a specialist in U.S. military planning and operational capabilities – the first would feel comfortable trading in A and  $\sim A$  while the second would feel comfortable trading in B and  $\sim B$ . But what about the potential for interaction between these issues and how can these two specialists comfortably express their views on interactions that only partially involve their expert knowledge? This is a job for PAM derivatives.

The cells that form the outside of the table below illustrate the four futures contracts that span the two issues. The PAM trading system makes sure that the prices for the futures contracts that span an issue add up to \$1.00; thus, a price is also a prediction; e.g., \$0.35 = 35% prediction of A. The inner four cells of the table represent the joint outcomes for these two issues – the PAM trading system prices these so that they are equivalent to predictions as well.

#### Issue A: Overthrow of Jordanian Monarchy

Issue B:  
Iraqi Regime  
persists after  
One Month of  
Hostilities

	A	$\sim A$	Price
B	AB 0.30	$\sim AB$ 0.20	\$0.50
$\sim B$	$A\sim B$ 0.05	$\sim A\sim B$ 0.45	\$0.50
Price	\$0.35	\$0.65	

**A** and  **$\sim A$**  are futures contracts that span **A**

**$A\sim B$**  is a derivative of the joint outcome

**A|B** (**A given B**) is a conditional derivative (a hedge)

A PAM trader who feels comfortable with both issues may choose to trade a contract in a joint outcome, a type of derivative. However, neither of the two PAM traders described above would be comfortable trading a joint derivative contract, which does not mean that such a trader has no information about joint outcomes.

The specialist in Jordanian domestic affairs may have a strong opinion that should the Iraqi regime persist beyond one month, the Jordanian monarchy will most likely fall. However, this PAM trader has no special knowledge of how U.S. military capabilities compare to Iraqi capabilities or of how the U.S. military intends to utilize its capabilities. For this trader, the conditional derivative, or hedge, is quite powerful. The conditional derivative allows the Jordanian domestic affairs specialist to leverage her knowledge of an effect (A) by hedging against her relative ignorance of a cause (B) – if the cause does not occur, then she does not lose any money, but if the cause does occur and the effect as well, then she can make a handsome profit.

### **Summary of PAM Futures Contracts**

Three types of futures contracts will be offered on PAM:

- Quarterly contracts based on data indices that track economic health, civil stability, military disposition, and U.S. economic & military involvement in Egypt, Iran, Iraq, Israel, Jordan, Saudi Arabia, Syria, and Turkey
- Quarterly contracts that track global economic and conflict indicators
- Specific possible events (e.g., U.S. recognition of Palestine in the first quarter of 2005)

When trading starts on October 1, 2003, there will be contracts of the first two types that mature at the end of the 4th quarter 2003, 1st 2004, 2nd 2004, and 3rd 2004. On January 1, 2004, contracts that mature at the end of the 4th quarter 2004 will be issued. In this way, the forward view of PAM will be maintained at one year.

Contracts of the third type will be issued into PAM as specific potential events of interest are identified.

### **The Organizations behind PAM**



Net Exchange has a ten-year history of applying innovative market technologies to processes not traditionally handled with markets – PAM is the latest chapter in this history. Net Exchange is responsible for design, development, and operation of the PAM trading system.

The Economist Intelligence Unit is the business information arm of The Economist Group, publisher of *The Economist*. Through a global network of over 500 analysts, it continuously assesses and forecasts political, economic and business conditions in 195 countries. As the world's leading provider of country intelligence, the Economist Intelligence Unit helps executives make better business decisions by providing timely, reliable and impartial analysis on worldwide market trends and business strategies. The Economist Intelligence Unit is working with Net Exchange to collect and process the data on which the securities in PAM are based, and then to assess the value of the securities when they mature.



The Defense Advanced Research Projects Agency (DARPA) is interested in improving on existing techniques for predicting future events and for assessing the issues that underlie and influence what might happen. DARPA has funded the development and operations of PAM. U.S. government agencies will not be allowed to participate in PAM and DARPA will not have access to the identities or funds of PAM traders.

### **Becoming a PAM Trader**

PAM is intended to have a globally distributed population of traders. Individuals interested in the Middle East and in the involvement of the United States with the countries of the Middle East are welcome to register as PAM traders. Individuals who are interested in the use of market processes to manage risk are also welcome to participate in PAM. Whatever a prospective trader's interest in PAM, involvement in this group prediction process should prove engaging and may prove profitable.

Trader registration will open on August 1, 2003 and will be accessed exclusively through this web site. There will be three steps to the trader registration process:

1. Acceptance of various terms governing access to and use of PAM, the principal of which is recognition that PAM is a prototype and that the registrant is agreeing to participate in the test of this prototype.
2. Selection of a username and password by the registrant.
3. Deposit of funds into the registrant's PAM trading account.

On-line training will begin for registered traders on September 1, 2003. Live trading will begin on October 1, 2003.

As a means of ensuring the smooth and efficient start of live operations, registration will be limited initially to 1,000 traders. As system operations are tuned to the trading load, this limit will be increased. By January 1, 2004, the limit will be raised to at least 10,000 traders.

During this first phase, we appreciate input from prospective PAM traders. These comments will assist in development of the interface as well as general information about PAM. More information and details will be added to the site in the next few weeks, however, we welcome hearing your thoughts and interest through the button below.

Focus on a Security of Interest					Special Event Securities			Global Securities										
Security Structure	Name	Current Price	Recent Price Range	Trading Volume	Your Holding \$	#	Brief (click for Detail)	Price	B	or	C	1 03	2 03	3 03	4 03	1 04	2 04	
Base	IQcd403<65	0.624	0.602	1,800	100	1.4.3	Jordan King Overthrown 4th 03	0.24				U.S. Equities	7.8	7.2	7.1	7.6	7.9	8.0
Base	TYum303100-120		0.635			2.4.3	N. Korea Missile Attack 4th 03	0.15				U.S. GDP	6.23	6.32	6.36	6.36	6.30	6.41
Cond.						1.1.4	U.S. Recog. Palestine 1st 04	0.32				Global Trade	7.5	7.2	7.1	7.5	7.9	8.0
Cond.						2.1.4	Arafat Assassinated 1st 04	0.17				Terror	1.13	1.65	1.89	2.14	2.54	3.94
												U.S. Mil. Deaths	45	127	113	60	200	436

Sort Market Transactions	Display in Portfolio	Transfer to Watch List	Transfer to Trading

Market Transactions					
Security	Current Price	Recent Price Range	Trading Volume	Transfer To Focus	
JNec40385-105	0.26	0.22 0.33	2,150		
IQcd403<65	0.17	0.15 0.29	1,800		
TYum303100-120					
SAmp403>110	0.35	0.32 0.40	1,050		
ILu\$104>100	0.55	0.52 0.61	850		
ETu\$104<110	0.40	0.35 0.40	700		
INec303105-115	0.45	0.45 0.52	650		
JNec40385-105	0.26	0.22 0.33	2,150		
IQcd403<65	0.17	0.15 0.29	1,800		
TYum303100-120					
SAmp403>110	0.35	0.32 0.40	1,050		
ILu\$104>100	0.55	0.52 0.61	850		
ETu\$104<110	0.40	0.35 0.40	700		
INec303105-115	0.45	0.45 0.52	650		
JNec40385-105	0.26	0.22 0.33	2,150		
IQcd403<65	0.17	0.15 0.29	1,800		
TYum303100-120					
SAmp403>110	0.35	0.32 0.40	1,050		
ILu\$104>100	0.55	0.52 0.61	850		
ETu\$104<110	0.40	0.35 0.40	700		
INec303105-115	0.45	0.45 0.52	650		

# of Registered Traders = Total Funds Deposited =

# of Recent Traders = Value of Recent Trades =

Focus On A Security Of Interest						Special Event Security				Global Security						
Structure	Name	Price	Range	Vol	Holding	#	Name	Price	Focus	Name	10/2	2/03	3/04	4/02	1/03	3/05
Base	J0cd3_00_87					1.2.3	Jordan King Overthrown 4th 02	0.23	<input type="radio"/> B <input type="radio"/> C	U.S. Equities	5.4	2.3	3.1	3.2	2.9	4.0
Base						1.2.3	N Korea Missile Attack 4th 03	0.23	<input type="radio"/> B <input type="radio"/> C	U.S. GDP	5.5	2	3.2	3.2	2.9	4.0
Cond		0.26	0.26	0.26	4.2	1.2.3	U.S. Recog. Palestine 1st 04	0.23	<input type="radio"/> B <input type="radio"/> C	Global Trade	5.6	3	3.3	3.2	2.8	4.0
Cond	TYum0_02_72-88					1.2.3	Arafat Assassinated 1st 04	0.23	<input type="radio"/> B <input type="radio"/> C	U.S. Mil. Deaths	5.7	6	3.4	3.2	2.8	4.0
										Terror	5.8	2.3	3.2	3.2	2.9	4.0

Sort Market Transaction    Transfer To Watch List  
 Display In Portfolio    Transfer To Trading    Clear

Market Transaction

Contract	Current Price	Price Range	Volume	Focus
J0cd1_02_25	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
TYum4_02_88-54	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
J0cd1_01_39	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
TYum0_02_81-15	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
J0cd0_06_17	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
TYum0_03_28-75	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
J0cd1_00_51	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
TYum3_00_65-68	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
J0cd3_00_31	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>
TYum0_03_8-53	0.26	0.22 - 0.33	2,333	<input type="checkbox"/>

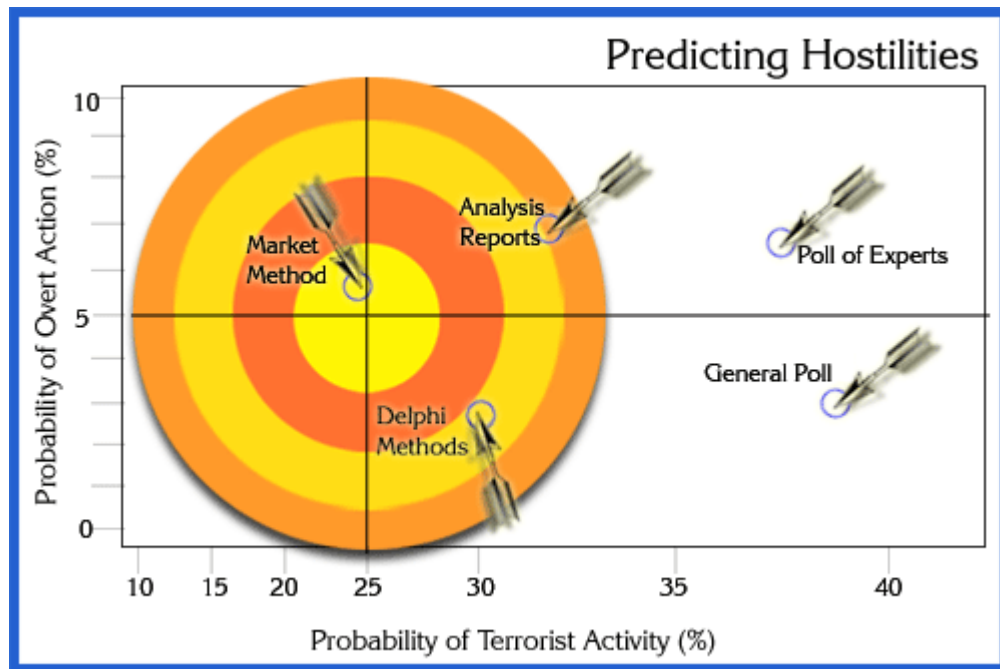
Regional Security





<http://www.darpa.mil/iao/FutureMap.htm>

## DARPA FutureMap



### Program Objective:

The DARPA FutureMAP (Futures Markets Applied to Prediction) program is a follow-up to a current DARPA SBIR, Electronic Market-Based Decision Support (SB012-012). FutureMAP will concentrate on market-based techniques for avoiding surprise and predicting future events. Strategic decisions depend upon the accurate assessment of the likelihood of future events. This analysis often requires independent contributions by experts in a wide variety of fields, with the resulting difficulty of combining the various opinions into one assessment. Market-based techniques provide a tool for producing these assessments.

There is potential for application of market-based methods to analyses of interest to the DoD. These may include analysis of political stability in regions of the world, prediction of the timing and impact on national security of emerging technologies, analysis of the outcomes of advanced technology programs, or other future events of interest to the DoD. In addition, the rapid reaction of markets to knowledge held by only a few participants may provide an early warning system to avoid surprise.

### Program Strategy:

The DARPA FutureMAP program will identify the types of market-based mechanisms that are most suitable to aggregate information in the defense context, will develop information systems to manage the markets, and will measure the effectiveness of markets for several tasks. Open issues that will drive the types of market include

information security and participant incentives. A market that addresses defense-related events may potentially aggregate information from both classified and unclassified sources. This poses the problem of extracting useful data from markets without compromising national security. Markets must also offer compensation that is ethically and legally satisfactory to all sectors involved, while remaining attractive enough to ensure full and continuous participation of individual parties. The markets must also be sufficiently robust to withstand manipulation. FutureMAP will bring together commercial, academic, and government performers to meet these challenges.

**Planned Accomplishments:**

TBD