

# Investment Roadmap

May 2008



# Investment Roadmap – FIX, ISO, FpML syntax (HIGH LEVEL)

	Cash Equities & Fixed Income	Forex <sup>(2)</sup>	Listed Derivatives	OTC Derivatives <sup>(2)</sup>	Funds
Pre-Trade	Orange	Orange	Orange	Yellow	Green
Trade	Orange	Orange	Orange	Yellow	Green
Post-Trade	Green with red checkered pattern	Green with red checkered pattern	Green with red checkered pattern	Yellow	Green
Clearing / Pre-Settlement	Green	Green	Green with red checkered pattern	Yellow	Green
Asset Servicing	Green	N/A	Green	Yellow	Green
Settlement	Green	Green	Green	Green	Green
Pricing / Risk / Reporting	Green with diagonal lines	Green with diagonal lines	Green with diagonal lines	Green with diagonal lines	Green with diagonal lines



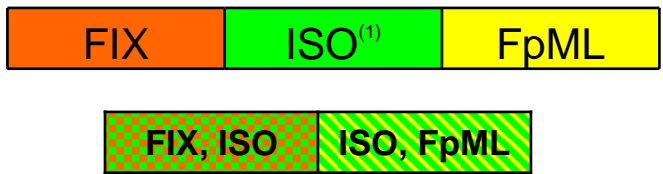
<sup>(1)</sup> Represents ISO 20022, ISO 15022 and SWIFT MT messages

<sup>(2)</sup> See OTC Derivatives breakout for details:

- Syndicated Loans, Privately Negotiated FX, and OTC Equity, Interest Rate, Credit, and Commodity Derivatives
- FpML payload may be used in combination with FIX business processes in dealer to buy side communication

# Investment Roadmap – Common ISO 20022 Business Model (HIGH LEVEL)

	Cash Equities & Fixed Income	Forex <sup>(2)</sup>	Listed Derivatives	OTC Derivatives <sup>(2)</sup>	Funds
Pre-Trade	FIX	ISO <sup>(1)</sup>	FpML	ISO, FpML	ISO, FpML
Trade					
Post-Trade	<i>Goal: ISO 20022</i>				
Clearing / Pre-Settlement	<i>Common Business Model</i>				
Asset Servicing					
Settlement	ISO, FpML				
Pricing / Risk / Reporting					



(1) Represents ISO 20022, ISO 15022 and SWIFT MT messages

(2) See OTC Derivatives breakout for details:

- Syndicated Loans, Privately Negotiated FX, and OTC Equity, Interest Rate, Credit, and Commodity Derivatives
- FpML payload may be used in combination with FIX business processes in dealer to buy side communication

# Investment Roadmap – FIX, ISO, FpML syntax (MEDIUM LEVEL)

	Cash Equities & Fixed Income	Forex <sup>(2)</sup>	Listed Derivatives	OTC Derivatives <sup>(2)</sup>	Funds
<b>Pre-Trade:</b> IOIs, Trade adverts, Quotes, Market data, Short Sale Locate, Reference Data					
<b>Trade:</b> Order Routing, Trade Execution, Trade Date Position Reporting, Reference Data					
<b>Post-Trade:</b> Trade Capture & Validations, Allocation, Matching, Confirmation/Affirmation, Position Management, Trade Reporting, OTC Derivatives Post Trade Processing					
<b>Clearing / Pre-Settlement:</b> Matching, Netting, Funding, Margining, Collateral Management, Reference Data					
<b>Asset Servicing:</b> Issuance, Corporate Actions, Proxy Voting, Securities Lending		N/A			
<b>Settlement:</b> Pre-advisement, Settlement Notification, Settlement, Transaction Management, Fail and Claim Management					
<b>Pricing / Risk / Reporting:</b> Tax Management, Income Collection, Risk Management, Pricing & Valuation, Reporting, Position Management, OTC Collateral Management, OTC Margining					



<sup>(1)</sup> Represents ISO 20022, ISO 15022 and SWIFT MT messages

<sup>(2)</sup> See OTC Derivatives breakout for details:

- Syndicated Loans, Privately Negotiated FX, and OTC Equity, Interest Rate, Credit, and Commodity Derivatives
- FpML payload may be used in combination with FIX business processes in dealer to buy side communication

# Investment roadmap – FIX, ISO, FpML syntax (DETAIL LEVEL)

	Cash Equities	Fixed Income	Forex	Listed Derivatives	OTC Derivatives <sup>(1)</sup>	Funds
<b>Pre-Trade:</b>						
•IOIs	FIX	FIX	N/A	FIX	FpML	N/A
•Trade advertisements	FIX	FIX	N/A	FIX	FpML	N/A
•Quotes	FIX	FIX	FIX	FIX	FpML	N/A
•Market Data	FIX	FIX	FIX	FIX	FpML	ISO
•Short Sale Locate	FIX	N/A	N/A	FIX	N/A	N/A
•Reference Data	FIX	FIX	FIX	FIX	FpML	ISO
<b>Trade:</b>						
•Order Routing	FIX	FIX	FIX	FIX	N/A	ISO
•Trade Execution	FIX	FIX	FIX	FIX	FpML	ISO
•Trade Date Position Reporting	FIX	FIX	FIX	FIX	FpML	ISO
•Reference Data	FIX	FIX	FIX	FIX	FpML	ISO
<b>Post-Trade:</b>						
•Trade Capture & Validations	FIX, ISO	FIX, ISO	FIX, ISO	FIX, ISO	FpML	ISO
•Allocation	FIX, ISO	FIX, ISO	FIX, ISO	FIX, ISO	FpML	ISO
•Matching	FIX, ISO	FIX, ISO	FIX, ISO	FIX, ISO	FpML	ISO
•Confirmation/Affirmation	FIX, ISO	FIX, ISO	FIX, ISO	FIX, ISO	FpML	ISO
•Position Management	FIX, ISO	FIX, ISO	FIX, ISO	FIX, ISO	FpML	ISO
•Trade Reporting	FIX, ISO	FIX, ISO	FIX, ISO	FIX, ISO	FpML	ISO
•Novation/Assignment (OTC Derivatives)	N/A	N/A	N/A	N/A	FpML	N/A
•Amendments / Modifications (OTC Derivatives)	N/A	N/A	N/A	N/A	FpML	N/A
•Termination (OTC Derivatives)	N/A	N/A	N/A	N/A	FpML	N/A
•Increases (OTC Derivatives)	N/A	N/A	N/A	N/A	FpML	N/A
•Affirmations (OTC Derivatives)	N/A	N/A	N/A	N/A	FpML	N/A
•Exercise (OTC Derivatives)	N/A	N/A	N/A	N/A	FpML	N/A

<sup>(1)</sup> FpML payload may be used in combination with FIX business processes in dealer to buy side communication.

# Investment roadmap – FIX, ISO, FpML syntax (DETAIL LEVEL)

	Cash Equities	Fixed Income	Forex	Listed Derivatives	OTC Derivatives	Funds
<b>Clearing / Pre-Settlement:</b>						
•Matching	ISO	ISO	ISO	FIX, ISO	FpML	ISO
•Netting	ISO	ISO	ISO	FIX, ISO	FpML	ISO
•Funding	ISO	ISO	ISO	FIX, ISO	FpML	ISO
•Margining	ISO	ISO	ISO	FIX, ISO	N/A	ISO
•Collateral Management	ISO	FIX, ISO	ISO	FIX, ISO	N/A	ISO
•Reference Data	ISO	ISO	ISO	FIX, ISO	N/A	ISO
<b>Asset Servicing:</b>						
•Issuance	ISO	ISO	N/A	ISO	N/A	ISO
•Corporate Actions	ISO	ISO	N/A	ISO	FpML	ISO
•Proxy Voting	ISO	ISO	N/A	ISO	N/A	ISO
•Securities Lending	ISO	ISO	N/A	ISO	FpML	ISO

# Investment roadmap – FIX, ISO, FpML syntax (DETAIL LEVEL)

	Cash Equities	Fixed Income	Forex	Listed Derivatives	OTC Derivatives	Funds
<b>Settlement:</b>						
•Pre-advisement	ISO	ISO	ISO	ISO	FpML	ISO
•Settlement Notification	ISO	ISO	ISO	ISO	FpML	ISO
•Settlement	ISO	ISO	ISO	ISO	ISO	ISO
•Transaction Management	ISO	ISO	ISO	ISO	ISO	ISO
•Fail and Claim Management	ISO	ISO	ISO	ISO	ISO	ISO
<b>Pricing / Risk / Reporting</b>						
•Tax Management	ISO	ISO	N/A	ISO	ISO	ISO
•Income Collection	ISO	ISO	ISO	ISO	ISO	ISO
•Risk Management						
•Pricing & Valuation				ISO, FpML		
•Reporting						
•Position Management						
•OTC Collateral Management	N/A	N/A	N/A	N/A	FpML	N/A
•OTC Margining	N/A	N/A	N/A	N/A	FpML	N/A