Interest Rate Conundrums in the 21st Century

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The views expressed here are mine's and do not necessarily represent those of the Banque de France or the Eurosystem.

Impact of short-term rates / MP on the yield curve?

- MP is powerful because it moves the yield curve
  - LT rates are not the std policy instrument but CBs can affect them
- This paper: post-2000 the effect of ST rates on LT yields
  - was more important than previously
  - but was also more transitory than previously

Basic results

$$\left(i_{t+h}^{LT} - i_t^{LT}\right) = \alpha_h + \beta_h \left(i_{t+h}^{ST} - i_t^{ST}\right) + u_{t+h}$$

	Estimates of β_h - US data	
	High frequency ($h = 1$ day)	Low frequency ($h = 1$ year)
1971-1999	**.56**	**.56**
2000-2017	**.86**	**.20**

post-2000:

- increase in level predicts downward shift in the slope
- overreaction of LT rates to MP
- holds for the US as well as other countries (UK, Germany, Canada)

Interpretation

$$\left(i_{t+h}^{LT} - i_t^{LT}\right) \approx \frac{1}{n} E_{t+h} \left\{ \sum_{j=0}^{n-1} \left(i_{t+h+j}^{ST} - i_{t+j}^{ST}\right) \right\} + \left(tp_{t+h} - tp_t\right)$$

Low frequency: drop in variance of persistent component of i_t^{ST} (inflation expectations more anchored)

$$\frac{1}{n} E_{t+h} \left\{ \sum_{j=0}^{n-1} \left(i_{t+h+j}^{ST} - i_{t+j}^{ST}\right) \right\} + \left(tp_{t+h} - tp_t\right) = \alpha_h + \beta_h \left(i_{t+h}^{ST} - i_t^{ST}\right) + u_{t+h}$$

High frequency: search for yield + limits to arbitrage; drop in i_t^{ST} leads to temporary drop in net supply for LT bonds hence decrease in tp_t

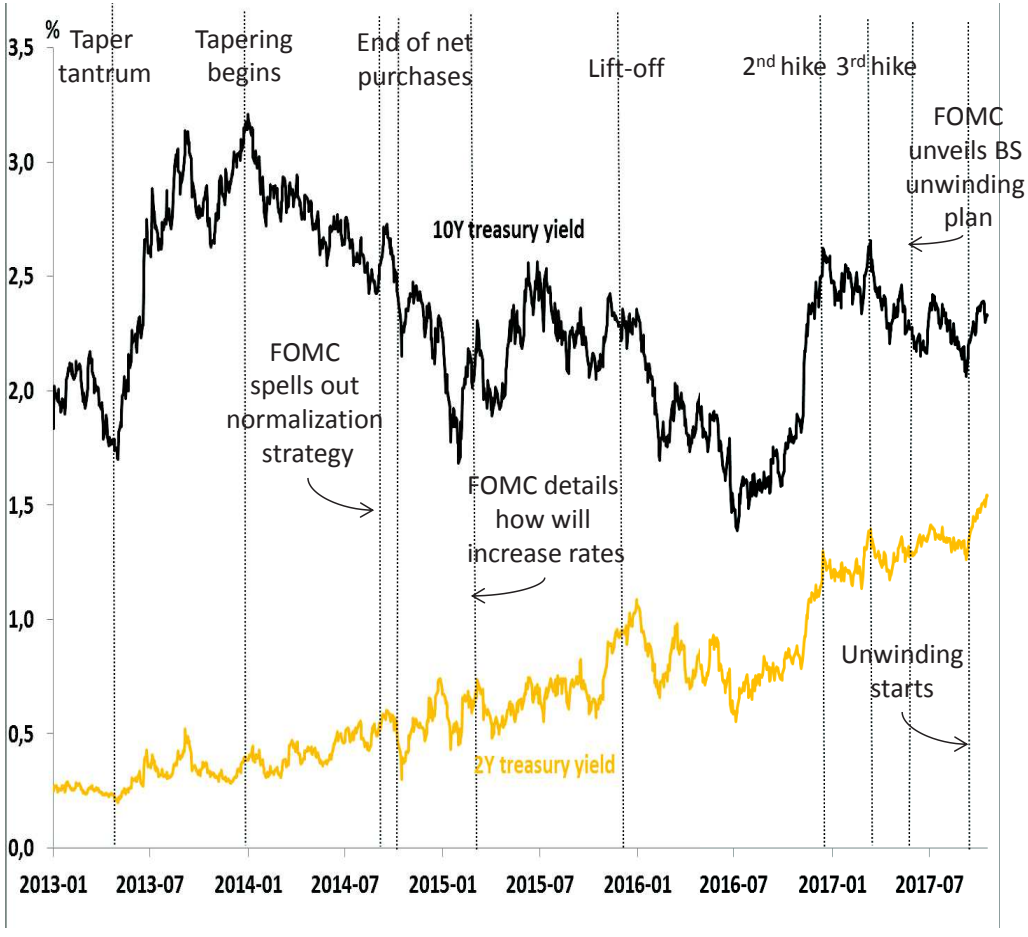
$$\frac{1}{n} E_{t+h} \left\{ \sum_{j=0}^{n-1} \left(i_{t+h+j}^{ST} - i_{t+j}^{ST}\right) \right\} + \left(tp_{t+h} - tp_t\right) = \alpha_h + \beta_h \left(i_{t+h}^{ST} - i_t^{ST}\right) + u_{t+h}$$

What is driving the increase in overreaction to MP?

- Paper emphasizes limits to arbitrage / search for yield and induced changes in net supply of long-term bonds
  - Why did this increase in the post-2000 period?
- The paper suggests different mechanisms (behavioral, mortgage refinancing, ALM by insurers and pensions)
  - Data supporting these different stories?
  - Discipline the calibration of C (the parameter driving the reaction of net bond supply to ST rates) using external data?
  - Example: Kojien-Koulischer-Nguyen-Yogo (2016) use EA security-level portfolio holdings by investor's type
  - No evidence that investors switched to longer term assets after QE was launched in the EA

Potential alternative explanation: CB communication

Example: 'normalization' of MP in the US



Potential alternative explanation: CB communication

Example: 'normalization' of MP in the US

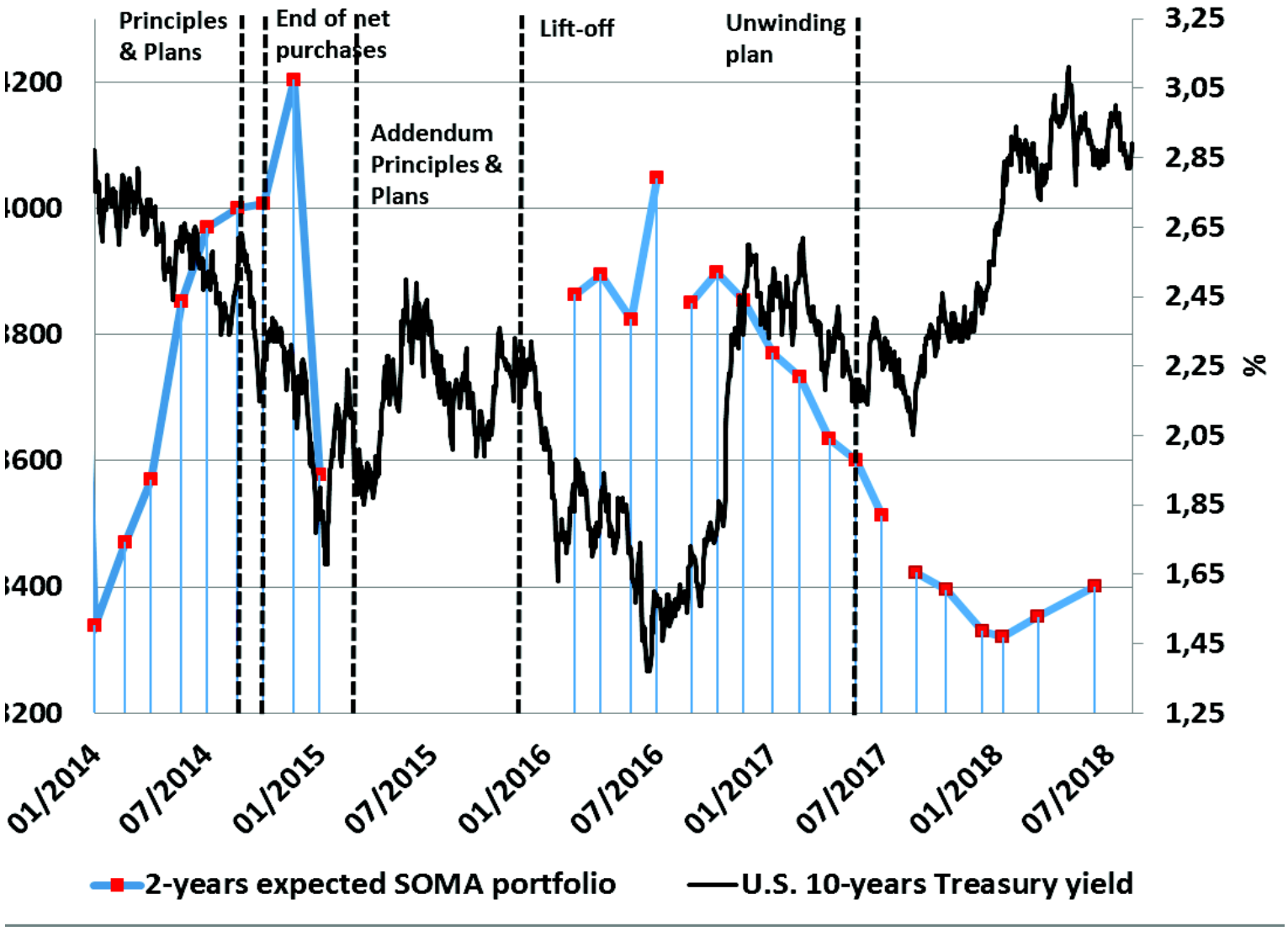
Sequence of decisions & communication about future purchases (reinvestments) and future rates (pace of increases in IR)

- Decisions often triggered initial increase in both ST & LT rates
- Then followed decline in LT rates
- Match the pattern identified in the paper
- However this may result from communication adjustments in order to avoid overreaction of LT yields to new steps in normalization

Potential alternative explanation: CB communication

Fed communication probably shifted expectations on reinvestments

Expected reinvestment negatively correlated with LT yield



Potential alternative explanation: CB communication

More generally

Increase in overreaction of LT rates can result from more active CB communication since the 2000s

- Communication on persistent future fundamentals (inflation target, potential growth)
- Communication on future stance given the fundamentals (FG)
- Complex signals to which markets react and might overreact
- Subsequent CB communication can correct potential overreaction

Potential alternative explanation: CB communication

LT yields react to intraday news on future fundamentals / future policy stance

- Andrade & Ferroni (2016): identify news about future fundamentals / stance in intraday EA monetary policy news

OIS rates	t	p	Adj R^2	t	d	o	Adj R^2
2y	0.87^{***}	1.16^{***}	0.44	1.57^{***}	1.60^{***}	0.49^{**}	0.59
3y	0.58^{**}	1.13^{***}	0.48	1.45^{***}	1.54^{***}	0.51^{**}	0.54
5y	0.37	0.93^{***}	0.38	0.90^{***}	1.42^{***}	0.49^{**}	0.46
10y	-0.09	0.50^{***}	0.11	0.18	0.88^{***}	0.01	0.17

So high-frequency changes in i_t^{ST} can also affect high-frequency changes in expected future i_{t+j}^{ST} far ahead

Policy implications

If limits to arbitrage

- Reinforce the transmission of MP (Stein 2013's recruitment channel)
- However this effect is only transitory; suggests inefficient fluctuations
- The CB cannot do much about it

If imperfect information

- CB is responsible of what they say and (even / maybe) of what markets understand
- Right degree of precision in communication / how to communicate?

Policy implications

Beware when using reaction of the yield curve to gauge efficacy of MP

- these movements might be only transitory
- same change (drop) in yield curve can reflect very different news (bad fundamentals / more accommodative stance)