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Discussion of "Portfolio Rebalancing and the Transmission of Large-Scale Asset Programs: Evidence from the Euro Area"

by Albertazzi, Becker, and Boucinha

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The views expressed herein are solely the responsibility of the discussant and should not be interpreted as reflecting the views of the Bank of Japan.

Research Question and Motivation 1

- ✓ After the global financial crisis, major central banks have adopted a wide range of unconventional measures.
- ✓ A key component of such unconventional measures is quantitative easing (QE), aiming at lowering long-term yields through an asset purchase programs (APP).
- ✓ A critical question is whether such asset purchase programs generate a positive impact on macro-economic developments, and if so, through which channel.

Research Question and Motivation 2

- ✓ This question is important because the effectiveness of QE or APP still remains unclear not only from a theoretical point of view but also from an empirical one.
- ✓ As the former Federal Reserve chairperson, Ben Bernanke put it, "*The problem with QE is that it works in practice, but it doesn't work in theory*."
- ✓ A lack of theoretical foundation makes empirical works challenging, that is, no clear guidance is given for the direction of empirical investigation. The authors have addressed those issues in this paper.

What the Authors Do 1

- ✓ The authors examine the impact of the ECB's Expanded Asset Purchase Program (APP), which was implemented against the backdrop of a very prolonged economic downturn.
- ✓ Specifically, the authors examine Portfolio Rebalance (PR) channel: APP exerts pressure on the supply of credit to the riskier segments of the economy.

What the Authors Do 2

- ✓ For the purpose, the authors exploit the granular information on the composition of security portfolios for all aggregate holding sectors in euro area countries.

Banks	Money-market funds	Insurance corporations	Pension funds
Non-financial corporations	Households	General government	Rest of the world

What the Authors Find

- ✓ No statistically significant relationship can be found between PR patterns across sectors and the exposure to the APP shock for the euro area as a whole.
- ✓ Statistically significant relationship can be found when focusing on more vulnerable countries only, in particular, in which credit risks are concerned.
- ✓ Banks more exposed to the APP displayed both large reductions in the interest on new loans and, and higher growth of credit extended to non-financial corporations.

Policy Takeaways (from Conclusions)

- ✓ The APP-related PR is statistically significant only for asset holders residing in more vulnerable countries, where credit conditions are still comparatively tight, in other words, risk-taking is still sub-optimal.
- ✓ The APP-related increase in risk-taking in vulnerable economies has affected securities issued by corporates (as opposed to sovereigns) and has resulted in more credit risk-taking (as opposed to maturity or currency risk-taking).

A Few Questions and Comments

Questions

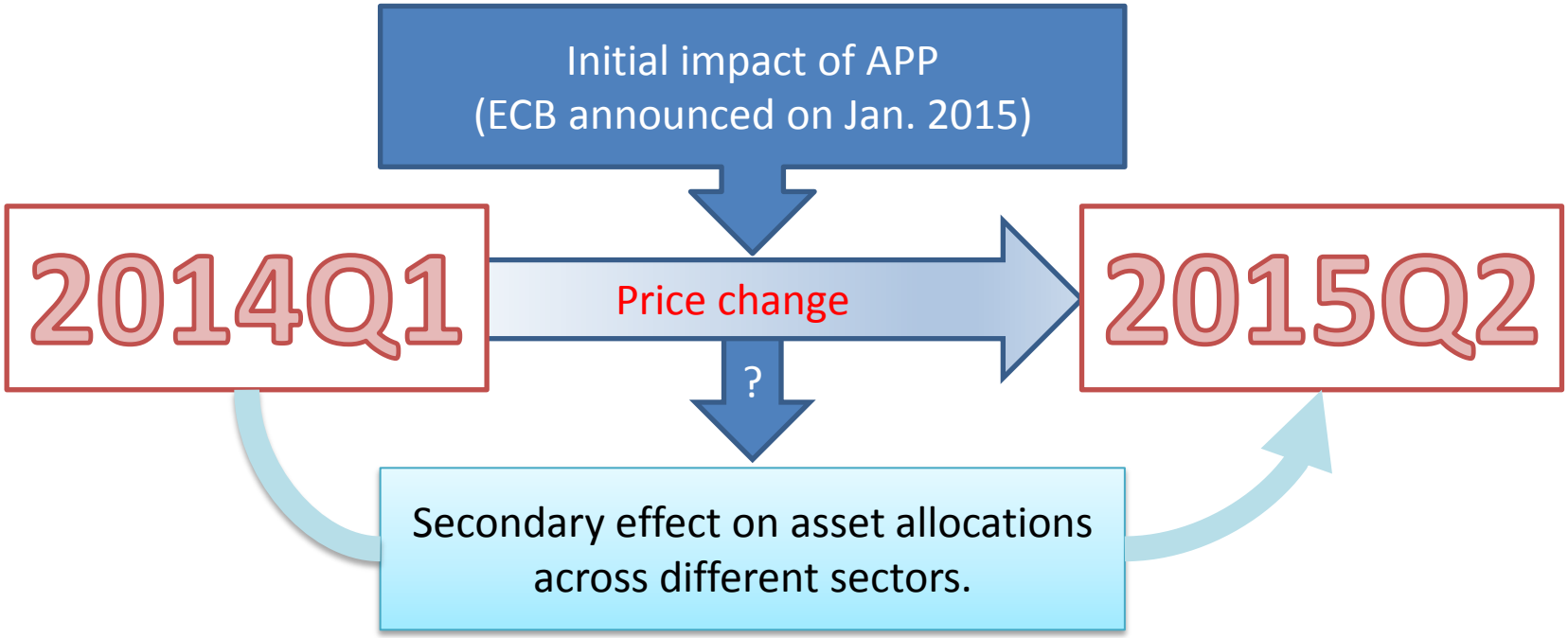
1. Estimation Period
2. Time-varying Coefficient
3. Identification Strategy
4. Types of Risk-taking Behaviors

Comments

1. Heterogeneity of APP Intensity
2. Loans and Investments

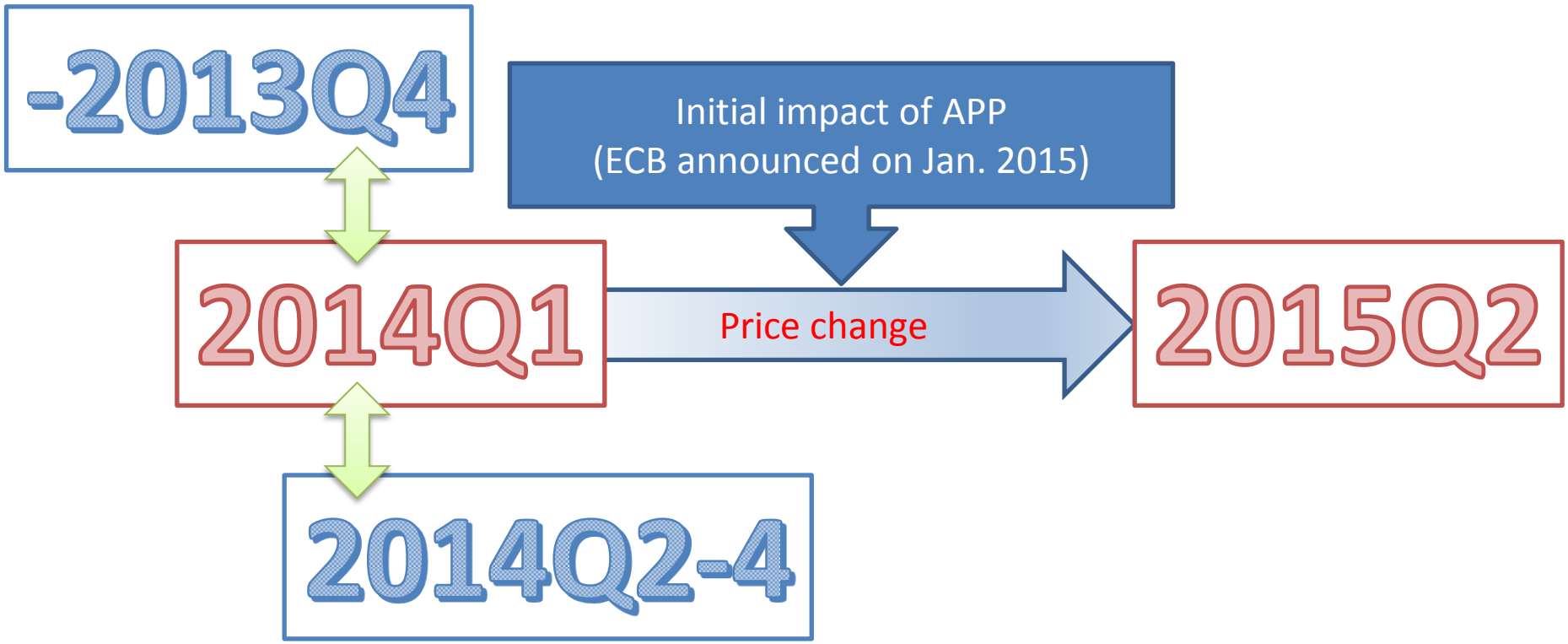
Question 1-1: Estimation Period

- ✓ The authors examine whether sectors experienced higher gains rebalanced toward riskier assets, compared to holding sectors with smaller gains.



Question 1-2: Estimation Period

- ✓ How does the choice of estimation periods matter?
- ✓ How robust are the estimation results in this regard?



Question 2-1: Time-varying Coefficient

Baseline specification

$$h_{i,h,t} = \left(\beta_0 m_h + \beta_0' r_{i,t} + \beta_0'' m_h r_{i,t}\right) + \left(\beta_1 m_h T_t + \beta_1' T_t r_{i,t} + \beta_1'' m_h T_t r_{i,t}\right) + \gamma T_t + \alpha_{i,t} + b_{h,t} + \epsilon_{i,h,t}$$

$$h_{i,h,t} = (\beta_0 + \beta_1 T_t) m_h + (\beta_0' + \beta_1' T_t) r_{i,t} + (\beta_0'' + \beta_1'' T_t) m_h r_{i,t} + \gamma T_t + \alpha_{i,t} + b_{h,t} + \epsilon_{i,h,t}$$

Time-varying coefficients

$$m_h \equiv w_h' e$$

- Intensity of APP
- Composition at 2014Q1
- Actual variations in the price of each security

Question 2-2 : Time-varying Coefficient

Baseline estimation: newly issued securities

	Full sample			Investors in vulnerable countries		
	(1)	(2)	(3)	(4)	(5)	(6)
yield-to-maturity (r_{it})	-0.0596	-0.0551*		-0.0968*	-0.0617**	
	(-1.26)	(-1.72)		(-1.80)	(-2.44)	
portfolio valuation (m_h)	-0.122*			0.0915		
	(-1.85)			(1.12)		
post-APP period dummy (T_t)	0.114			0.594		
	(0.46)			(1.59)		
$r_{it} * m_h$	-0.0200	-0.0195	0.0171	0.0155	0.00118	0.0487***
	(-0.95)	(-1.54)	(1.30)	(0.80)	(0.09)	(2.70)
$r_{it} * T_t$	-0.00852	-0.0778		-0.274**	-0.319**	
	(-0.07)	(-0.82)		(-2.47)	(-2.61)	
$m_h * T_t$	-0.0368			-0.0445		
	(-0.78)			(-0.63)		
$r_{it} * m_h * T_t$	-0.00620	0.00718	-0.00175	0.0528**	0.0708**	0.0469*
	(-0.20)	(0.32)	(-0.35)	(2.31)	(2.37)	(1.92)
holder*time f.e.	No	Yes	Yes	No	Yes	Yes
security f.e.	No	No	Yes	No	No	Yes
N	232626	232618	182580	49869	49865	39450
R^2	0.051	0.320	0.558	0.030	0.244	0.635

β_0''

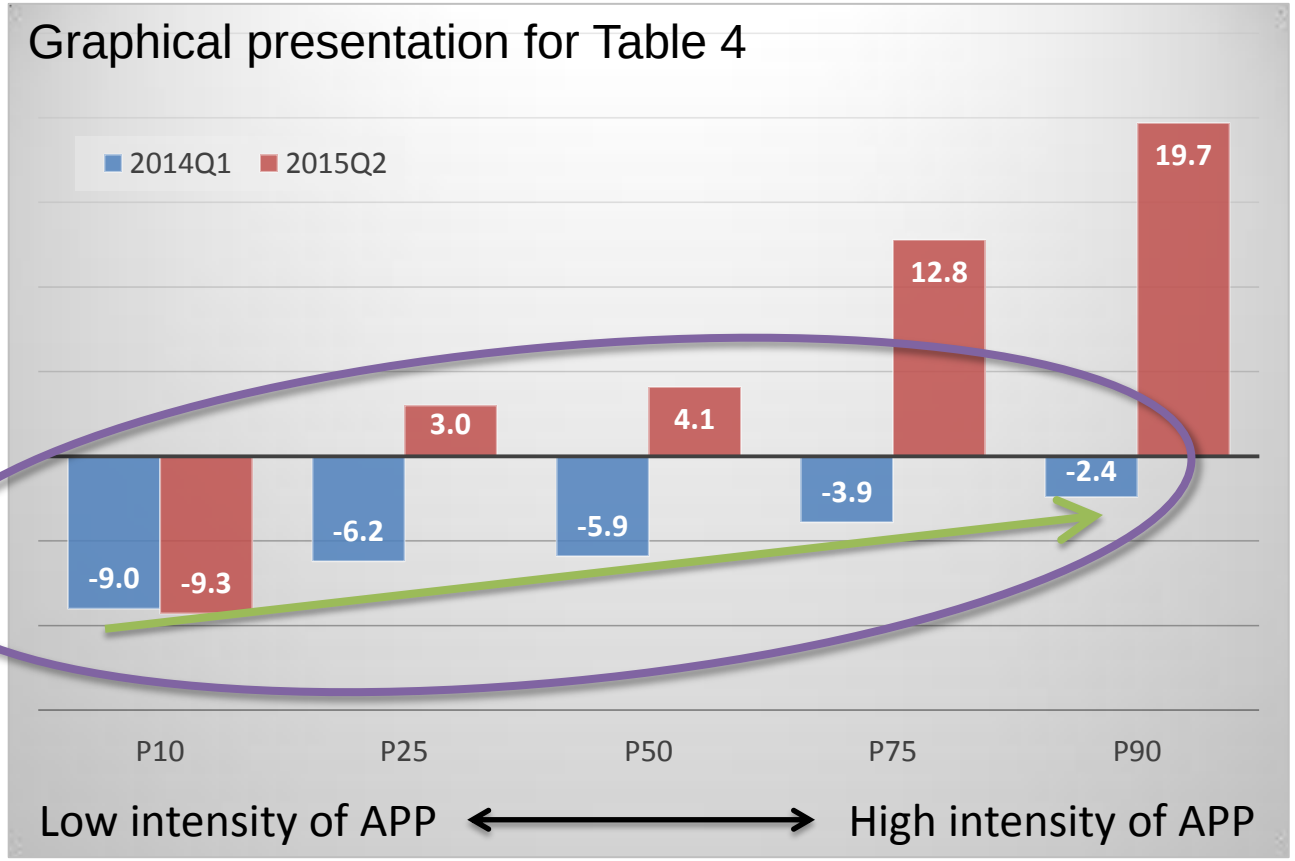
β_1''

Question 2-3: Time-varying Coefficient

- ✓ How should we interpret the time-varying coefficients?
- ✓ The explanatory variable m_h, which represents APP intensity, contains information on how security prices change before and after the announcement of APP.
- ✓ Then, what do the time-varying coefficients capture in addition to change in the explanatory variable m_h? Is there any policy implications?

Question 2-4: Time-varying Coefficient

- ✓ This question may take another form for Table 4 (Semi-elasticity of the amount of security holdings to the yield-to-maturity in vulnerable countries.)



Question 3: Identification Strategy

- ✓ The authors assume that incentives for rebalancing portfolio are identical across holding sectors. How plausible is this assumption?
- ✓ Is it enough to control the factor of holding sectors by using dummy variable approach although it cannot deal with heterogeneous sensitivity to APP shock?
- ✓ Estimation for only a certain type of holding sector such as a bank may be a good robustness check.

Question 4-1: Types of Risk-taking Behaviors

Table 2

Descriptive statistics for newly issued securities before and after the shock

	Mean		Weighted mean		N. Obs.	
	Pre	Post	Pre	Post	Pre	Post
Full sample						
Yield-to-maturity	3.23	2.71	2.34	1.80	112159	123264
Spread $_{it}$	2.65	2.42	1.63	1.41	108880	119841
Maturity $_{it}$	79 <	83	93	98	108880	119841
NonEur $_{it}$	0.38	0.42	0.17	0.23	108880	119841
Vulnerable countries						
Yield-to-maturity	3.42	2.96	2.55	1.94	25514	24626
Spread $_{it}$	2.75	2.58	2.09	1.66	24983	24210
Maturity $_{it}$	81 <<	93	82	102	24983	24210
NonEur $_{it}$	0.32	0.36	0.11	0.14	24983	24210
Less vulnerable countries						
Yield-to-maturity	3.17	2.65	2.27	1.76	86645	98638
Spread $_{it}$	2.62	2.38	1.49	1.33	83897	95631
Maturity $_{it}$	78 <	80	97	96	83897	95631
NonEur $_{it}$	0.39	0.43	0.11	0.14	83897	95631

Question 4-2: Types of Risk-taking Behaviors

- ✓ An increase in average maturity is observed before and after the announcement of APP.
- ✓ Can we interpret this observation as a PR toward riskier investment in the sense that investors allocate their assets to much longer term securities?

Question 4-3: Types of Risk-taking Behaviors

Table 6

Investment in newly issued securities of holders resident in vulnerable countries: individual risk factors

	(1)		(2)		(3)	
portfolio valuation (m_h)	0.177	(1.61)				
post-APP period dummy (T_t)	0.452	(1.46)				
$Spread_{it}$	-0.132*	(-1.98)	-0.0330	(-1.17)		
$Maturity_{it}$	0.00391	(0.99)	0.00232	(0.70)		
$NonEur_{it}$	-1.005**	(-2.22)	-1.437***	(-5.35)		
$m_h * T_t$	-0.0326	(-0.61)				
$Spread_{it} * m_h$	0.0359*	(1.68)	0.00739	(0.63)	0.0230	(1.15)
$Maturity_{it} * m_h$	-0.00111	(-1.23)	-0.000928	(-1.24)	-0.0000211	(-0.07)
$NonEur_{it} * m_h$	0.0432	(0.40)	0.0111	(0.20)	0.0525	(0.48)
$Spread_{it} * Tt$	-0.262**	(-2.34)	-0.256*	(-1.91)		
$Maturity_{it} * Tt$	-0.000737	(-0.75)	0.0000207	(0.03)		
$NonEurit * Tt$	0.384*	(1.82)	0.673***	(2.84)		
$Spread_{it} * m_h * Tt$	0.0529**	(2.31)	0.0571*	(1.87)	0.0435*	(1.83)
$Maturity_{it} * m_h * Tt$	0.000179	(0.72)	0.0000614	(0.41)	-0.0000783	(-0.58)
$NonEur_{it} * m_h * Tt$	-0.0551	(-0.84)	-0.110*	(-1.86)	-0.109**	(-2.16)
holder*time f.e.	No		Yes		Yes	
security f.e.	No		No		Yes	
N	50374		50370		40209	
R^2	0.058		0.286		0.626	

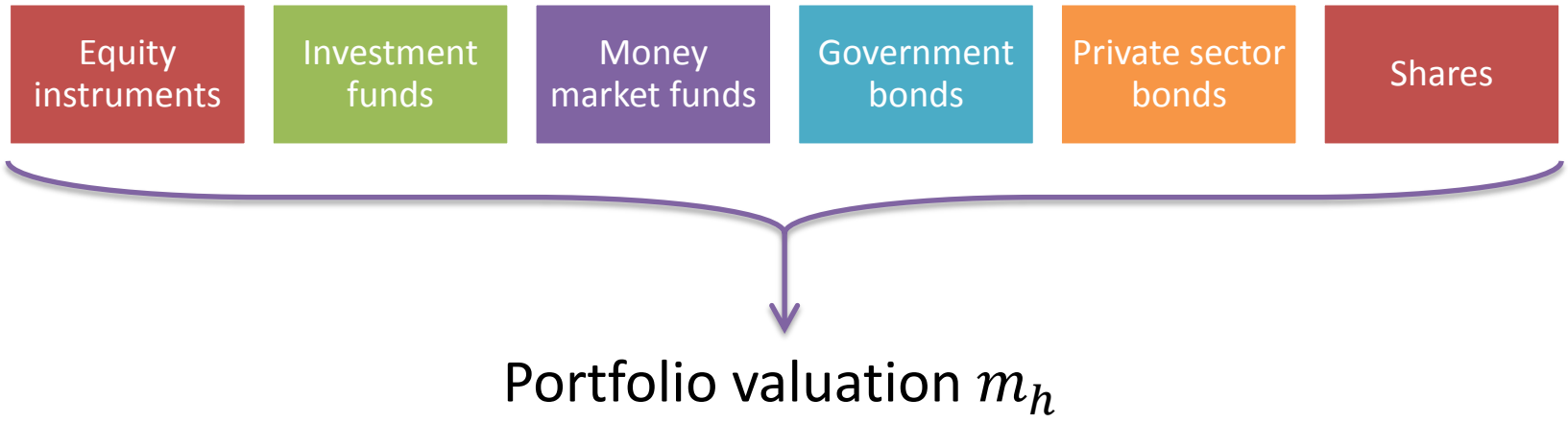
Maturity is not associated?

Question 4-4: Types of Risk-taking Behaviors

- ✓ Can we interpret all the above observations as follows?:
  - APP has a significant first-round effect in the sense of maturity extension.
  - But APP has no second-round effect on asset allocations through a change in average maturity.
- ✓ Can we draw some policy implications from these observations?

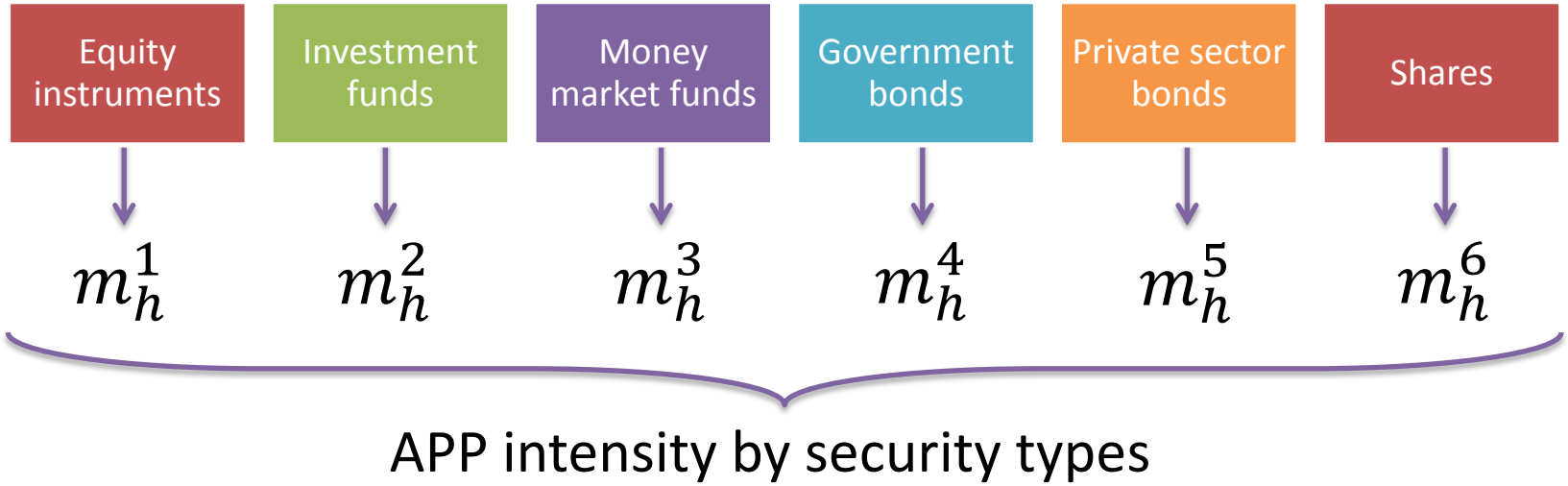
Comment 1-1: Heterogeneity of APP Intensity

- ✓ APP intensity is measured by portfolio valuation m_h.
- ✓ Since portfolios consist of various types of assets, the shares of each security are disproportionate across countries, leading to heterogeneous levels and characteristics of m_h across regions.



Comment 1-2: Heterogeneity of APP Intensity

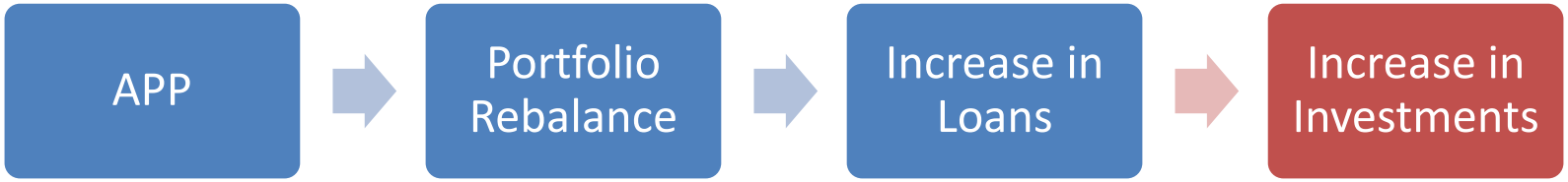
- ✓ Can you identify the contribution of each type of security on the PR effect by separating out m_h by securities?



- ✓ This framework can give us information on the effective markets in which central banks should buy assets.

Comment 2: Loans and Investments

- ✓ The authors show that monetary policy shock is associated with higher growth of loans to non-financial corporations (but not with a comparatively stronger decline in interest rates).



- ✓ The effectiveness of APP on the real economy remains unclear in the sense that there is no direct evidence for an increase in business/residential investments.

- ✓ This may be one of the future directions of the research.

Overall Assessment

- ✓ Impressive and challenging paper with critical policy implications for the unconventional monetary policy.
- ✓ Robustness checks may be needed to ensure that the estimation results do not change substantially when relaxing the assumptions about identification issues or changing estimation periods.
- ✓ Important future direction of the current research is about the effectiveness of PR on the real economy such as business and residential investments.