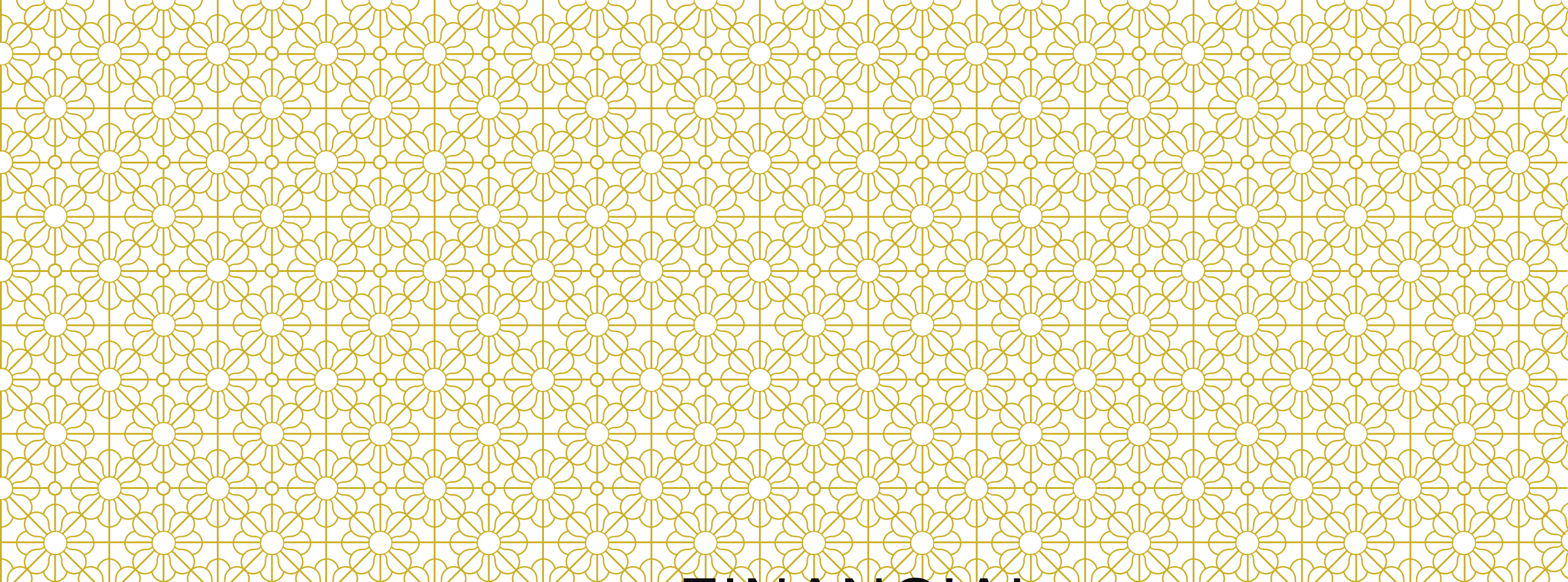
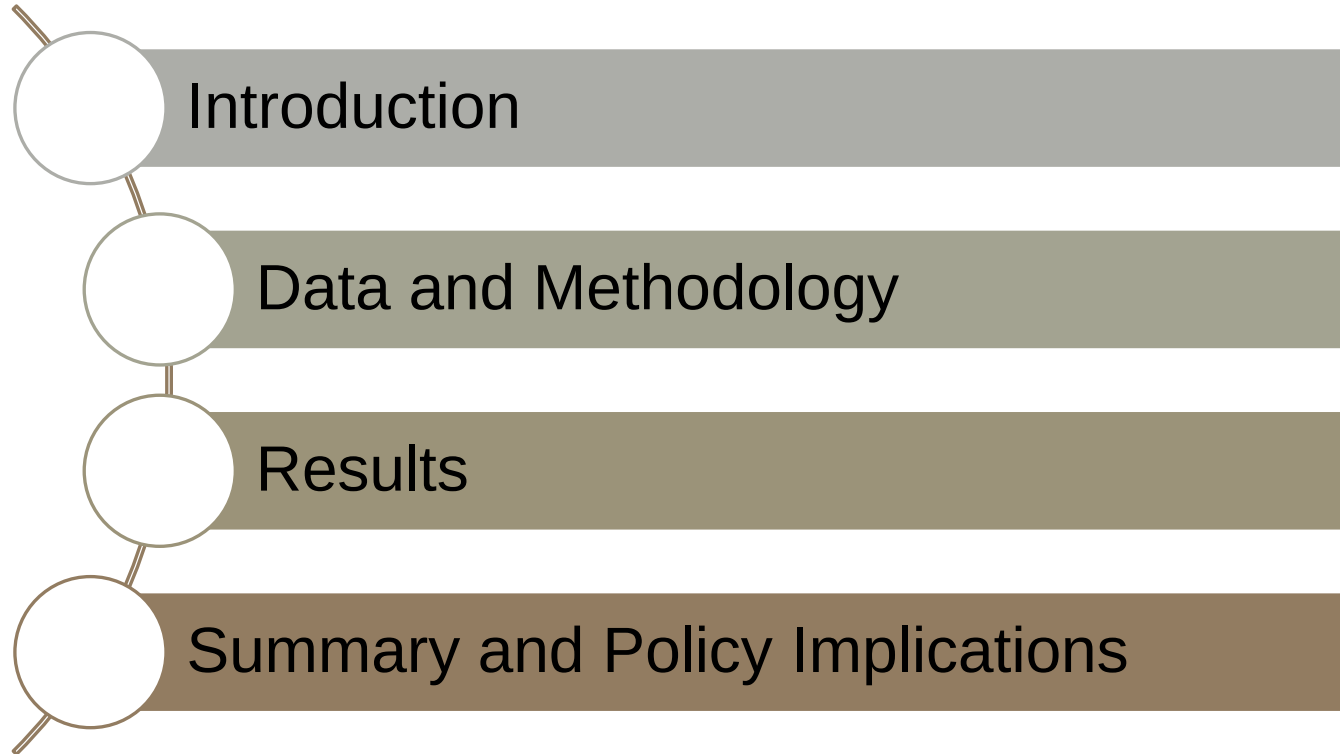


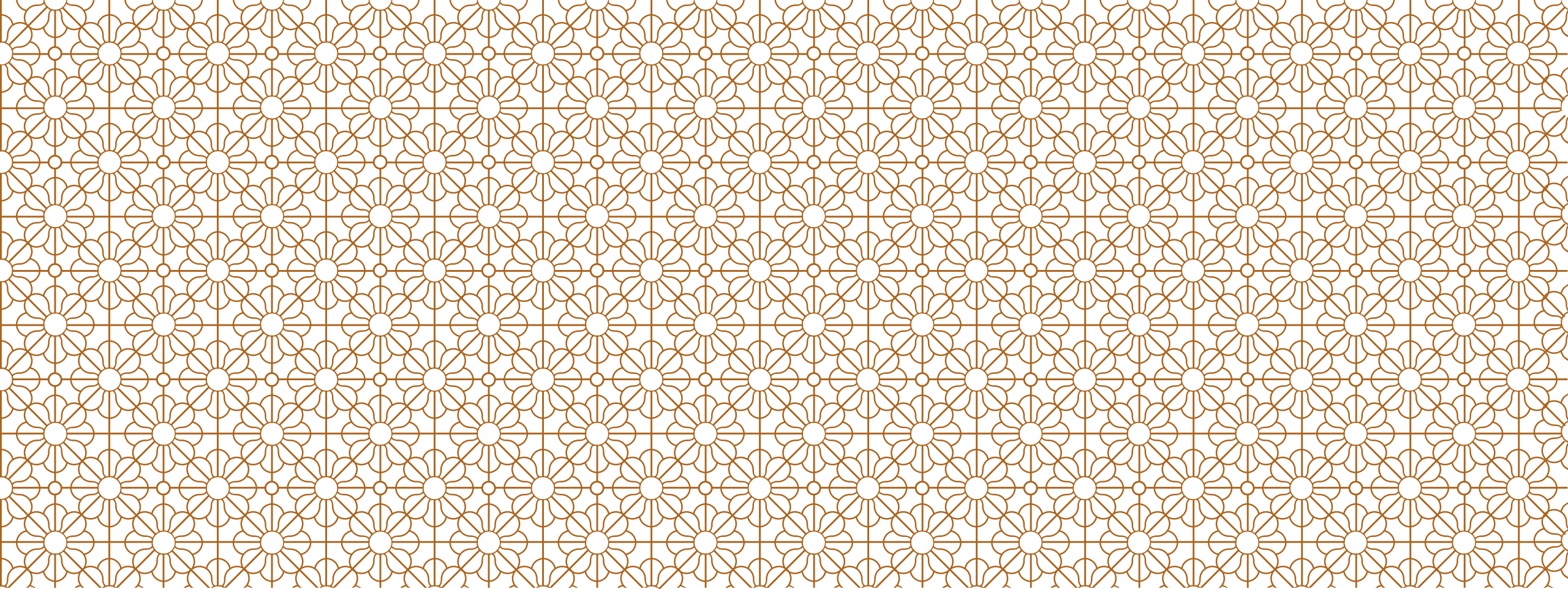


FINANCIAL INTERMEDIATION, ASSET PRICES AND MACROECONOMIC DYNAMICS

Adrin, Tobias; Moench,
Emanuel; Shin, Hyun Song
Presented by: Sirikorn
Puangjit ID:5404641051

OUTLINE



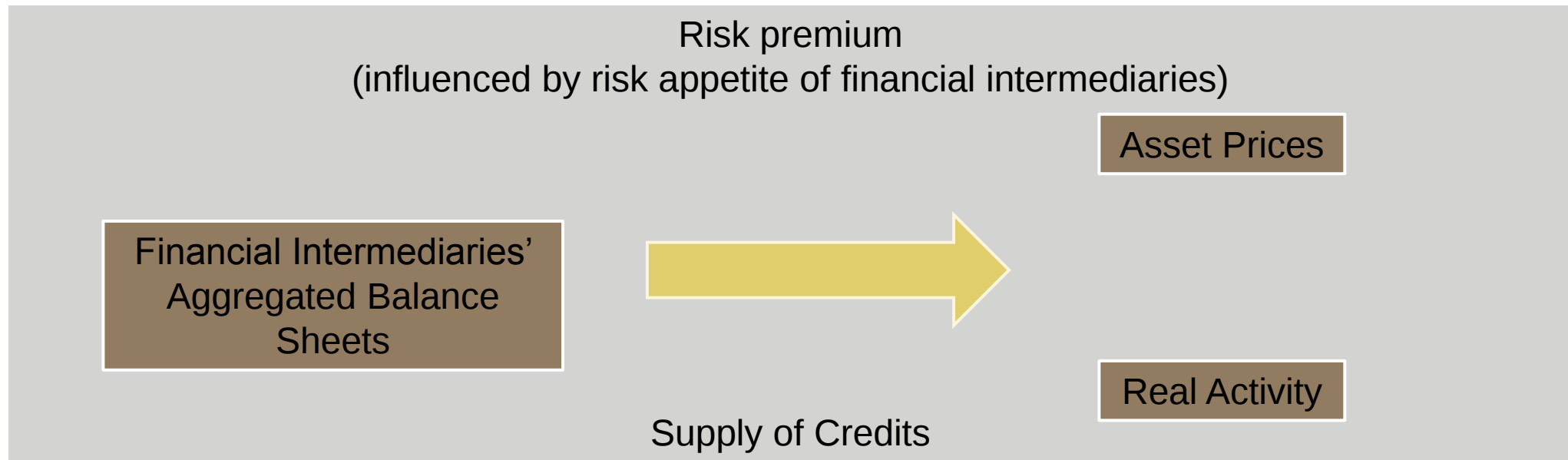


INTRODUCTION



INTRODUCTION

THE LINK AND HYPOTHESES

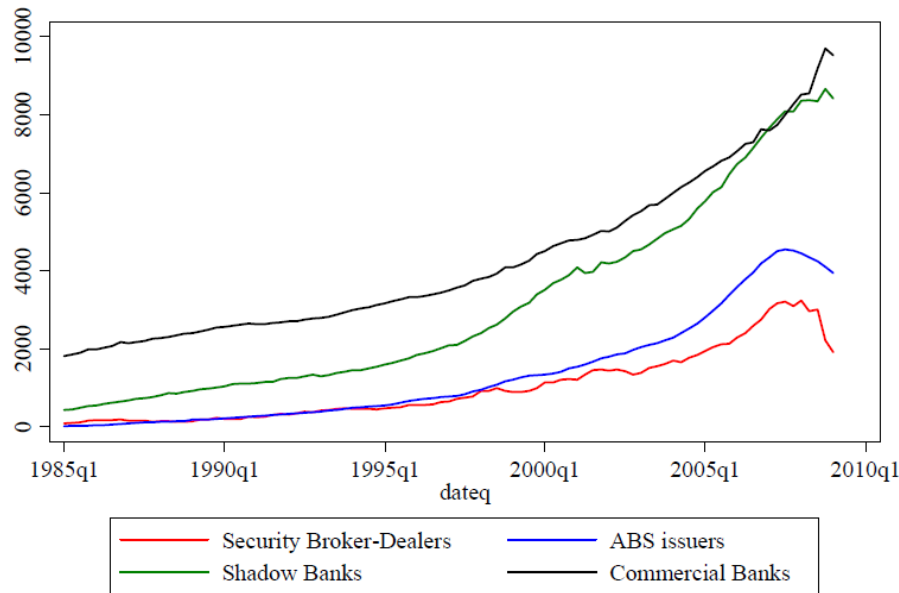


H1: Balance Sheets convey information on risk premia through fluctuation in willingness to bear risk

H2: Real activity is influenced by the supply of credit, which is determined by the market risk premium

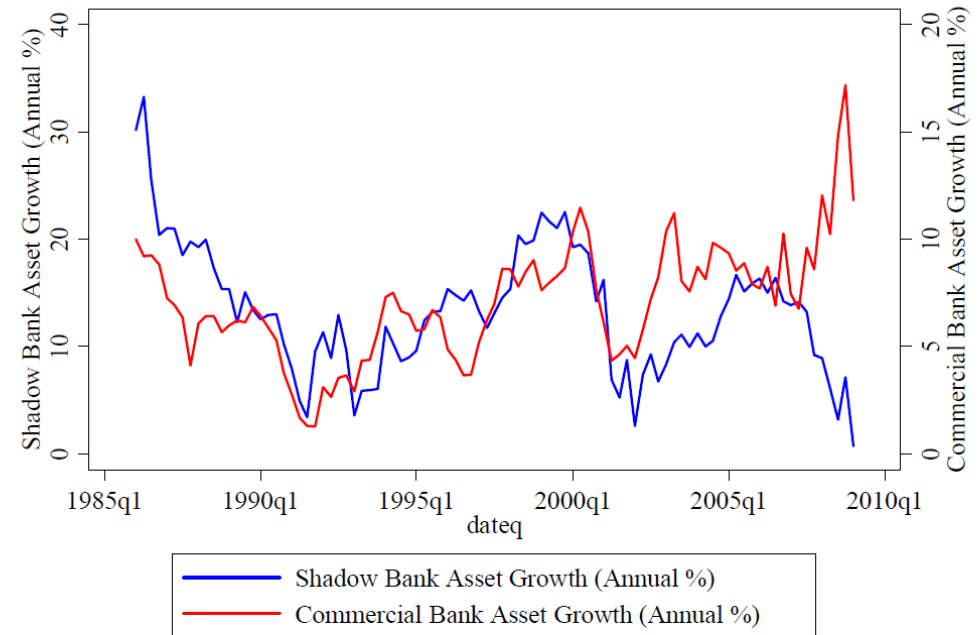
INTRODUCTION

THE CHANGING NATURE OF FINANCIAL INTERMEDIATION



Note: Shadow banks are ABS issuers, finance companies, and funding corporation
Source: Board of Governors of the Federal Reserve

Total Assets of Commercial Banks,
Shadow banks and Broker Dealers

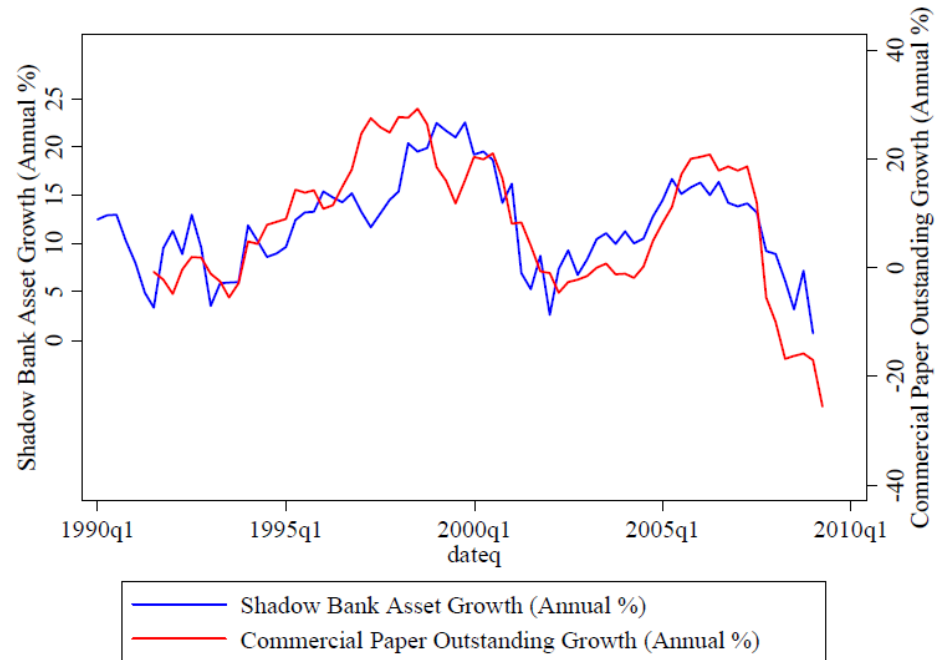


Note: Shadow banks are ABS issuers, finance companies, and funding corporation
Source: Board of Governors of the Federal Reserve

Total Asset Growth of Shadow Banks and
of Commercial Banks

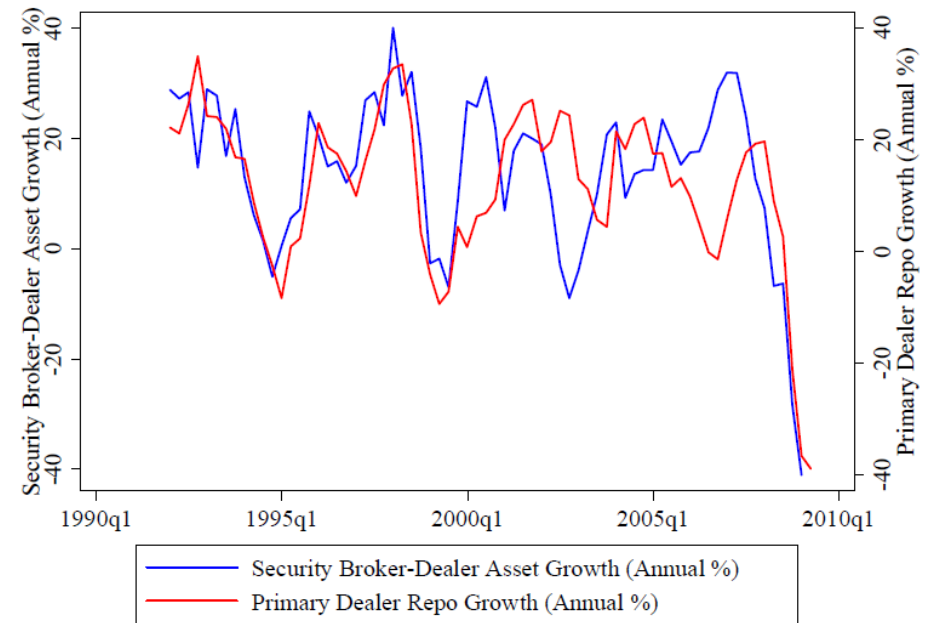
INTRODUCTION

THE CHANGING NATURE OF FINANCIAL INTERMEDIATION



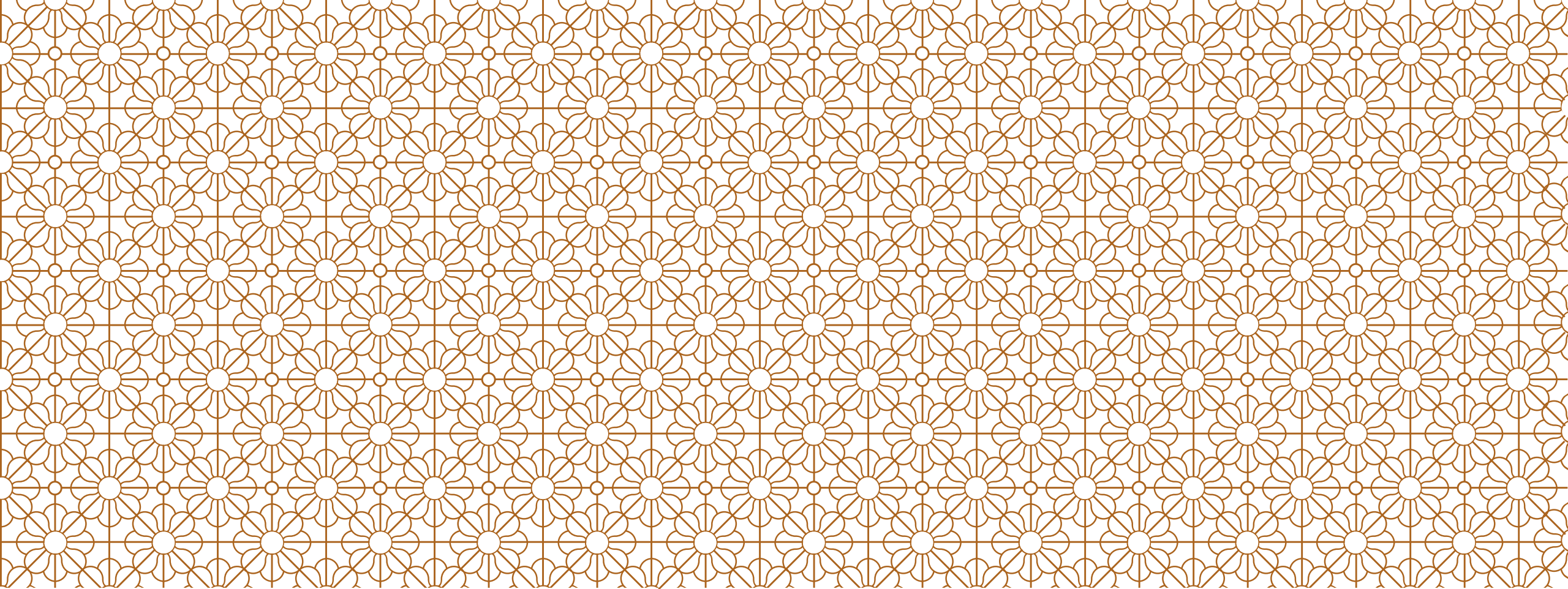
Sources: Board of Governors of the Federal Reserve

Marginal Funding of Shadow Banks is Commercial Paper



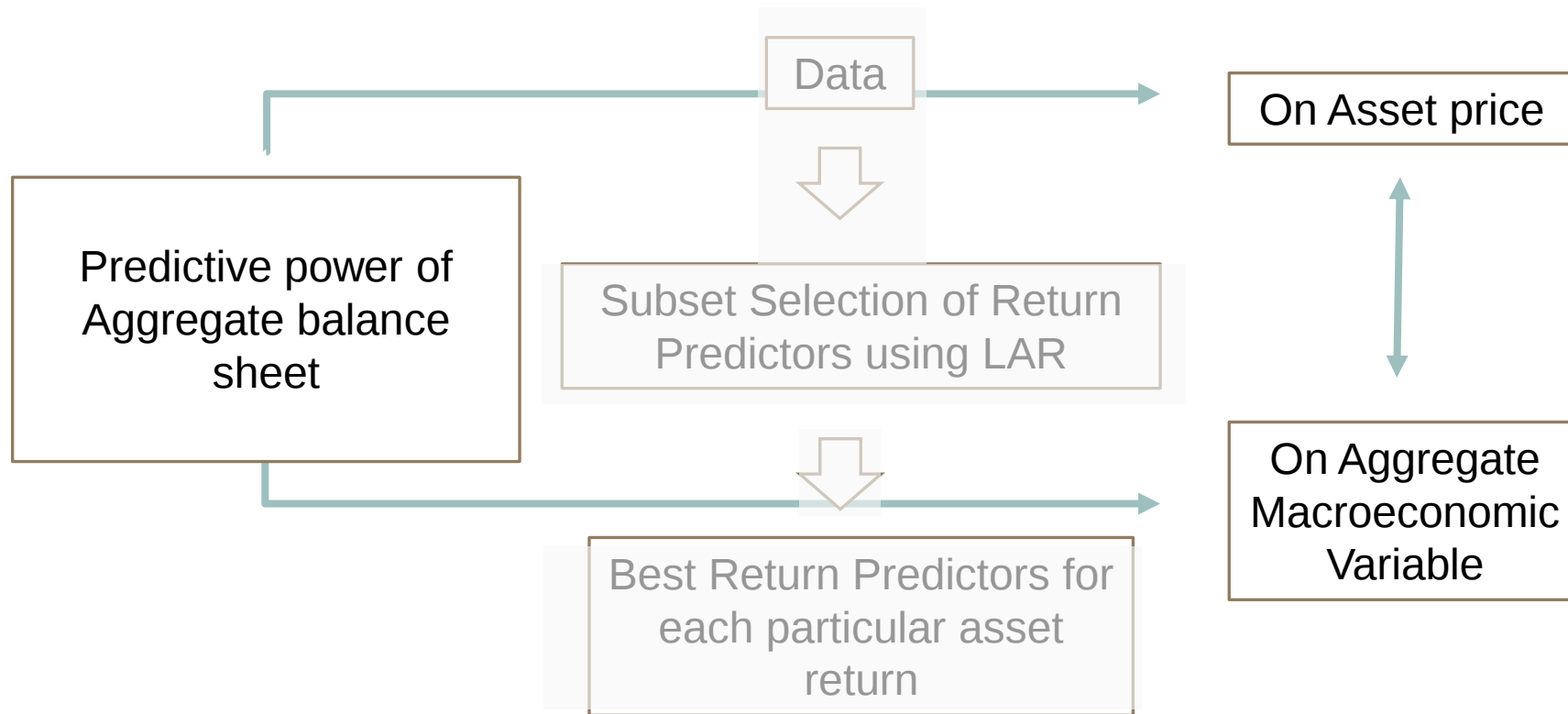
Sources: Board of Governors of the Federal Reserve and Federal Reserve Bank of New York

Marginal Funding of Broker-Dealers is Repo



DATA AND METHODOLOGY

DATA AND METHODOLOGY



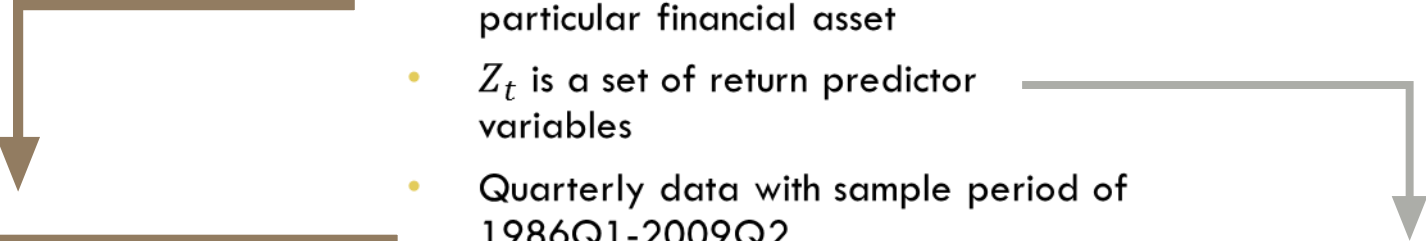
DATA AND METHODOLOGY

THE PREDICTIVE RETURN REGRESSION AND DATA OVERVIEW

$$Rx_{t+1}^{(n)} = \alpha + \beta Z_t + \epsilon_{t+1}^{(n)}$$

where

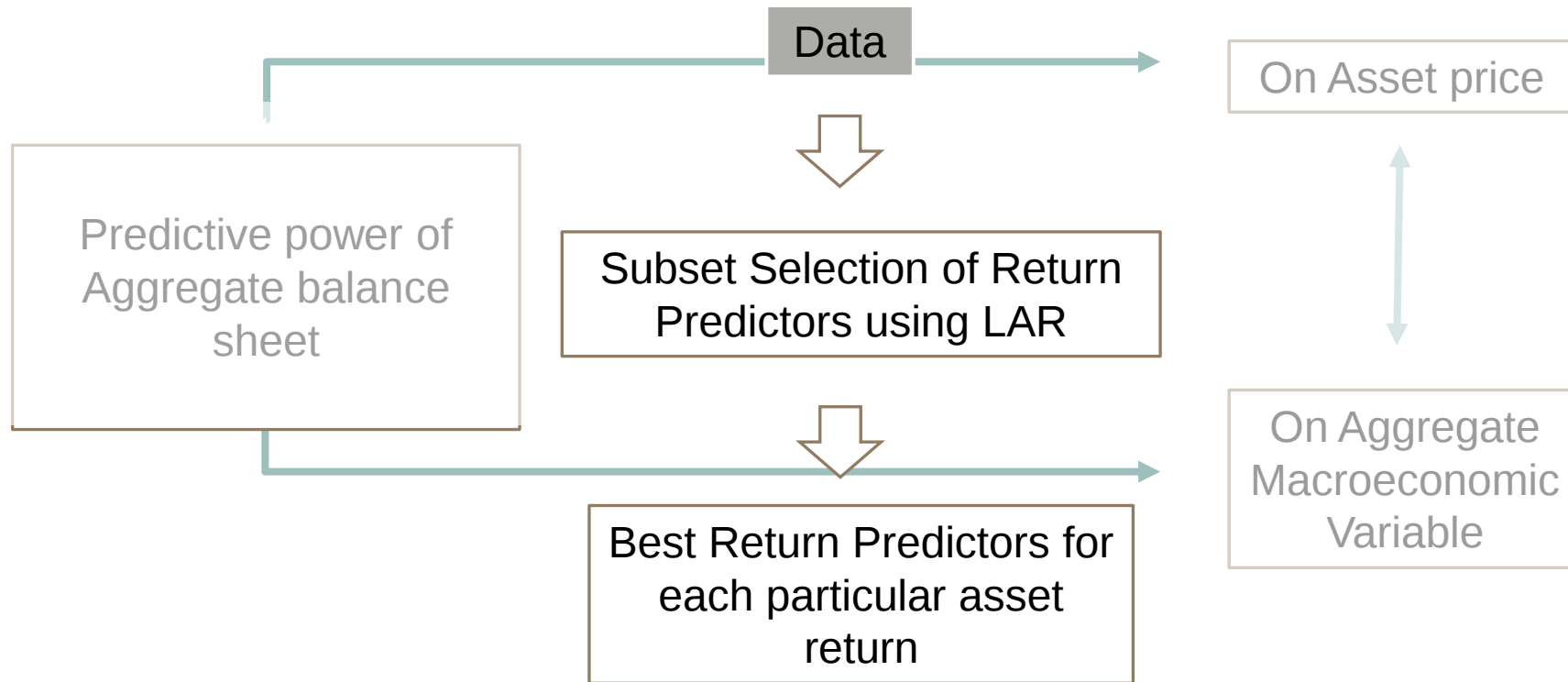
- $Rx_{t+1}^{(n)}$ is the excess return on a particular financial asset
- Z_t is a set of return predictor variables
- Quarterly data with sample period of 1986Q1-2009Q2



✓ XR on Equity Portfolios
✓ XR on Corporate Bonds
✓ XR on Government Bonds

✓ Balance Sheet Data Series
✓ Macro Series
✓ Benchmark Return Forecasting Factors

DATA AND METHODOLOGY



DATA AND METHODOLOGY

THE $Rx_{t+1}^{(n)}$

Equity Portfolios

Mnemonic	Description
MKT	Fama French Market Portfolio
D1M1	Low Dividend Low Momentum Portfolio
D1M5	Low Dividend High Momentum Portfolio
D5M1	High Dividend Low Momentum Portfolio
D5M5	High Dividend High Momentum Portfolio
FF11	Small Size Low Value Portfolio
FF15	Small Size High Value Portfolio
FF51	Large Size Low Value Portfolio
FF55	Large Size High Value Portfolio

Bond Returns

Mnemonic	Description
Corporate Bond Returns	
IGI	Investment Grade Industrials
IGU	Investment Grade Utilities
IGF	Investment Grade Financials
Aaa	Aaa Rated
Aa	Aa Rated
A	A Rated
Baa	Baa Rated
Treasury Returns	
CMT1	1-year Constant Maturity Treasury Return
CMT2	2-year Constant Maturity Treasury Return
CMT5	5-year Constant Maturity Treasury Return
CMT7	7-year Constant Maturity Treasury Return
CMT10	10-year Constant Maturity Treasury Return
CMT20	20-year Constant Maturity Treasury Return
CMT30	30-year Constant Maturity Treasury Return

DATA AND METHODOLOGY

THE Z_t

Balance Sheet Data Series from the Flow of Funds Accounts

Mnemonic	Description
FINBANK	Banks
CB	Commercial banks
SI	Savings institutions
CU	Credit unions
FINPI	Pension Funds and Insurances
PCIC	Property-casualty insurance companies
LIC	Life insurance companies
PPF	Private pension funds
SLGERF	State & local govt employee retirement funds
FGRF	Federal government retirement funds
FINMF	Mutual Funds
MMMF	Money market mutual funds
MF	Mutual funds
CEF	Closed-end funds and exchange-traded funds
SHADBANK	Shadow Banks
MORTPOOL	Agency- and GSE-backed mortgage pools
ABS	Issuers of asset-backed securities
FINCO	Finance Companies
FUNDCORP	Funding corporations
SBRDLR	Security brokers and dealers

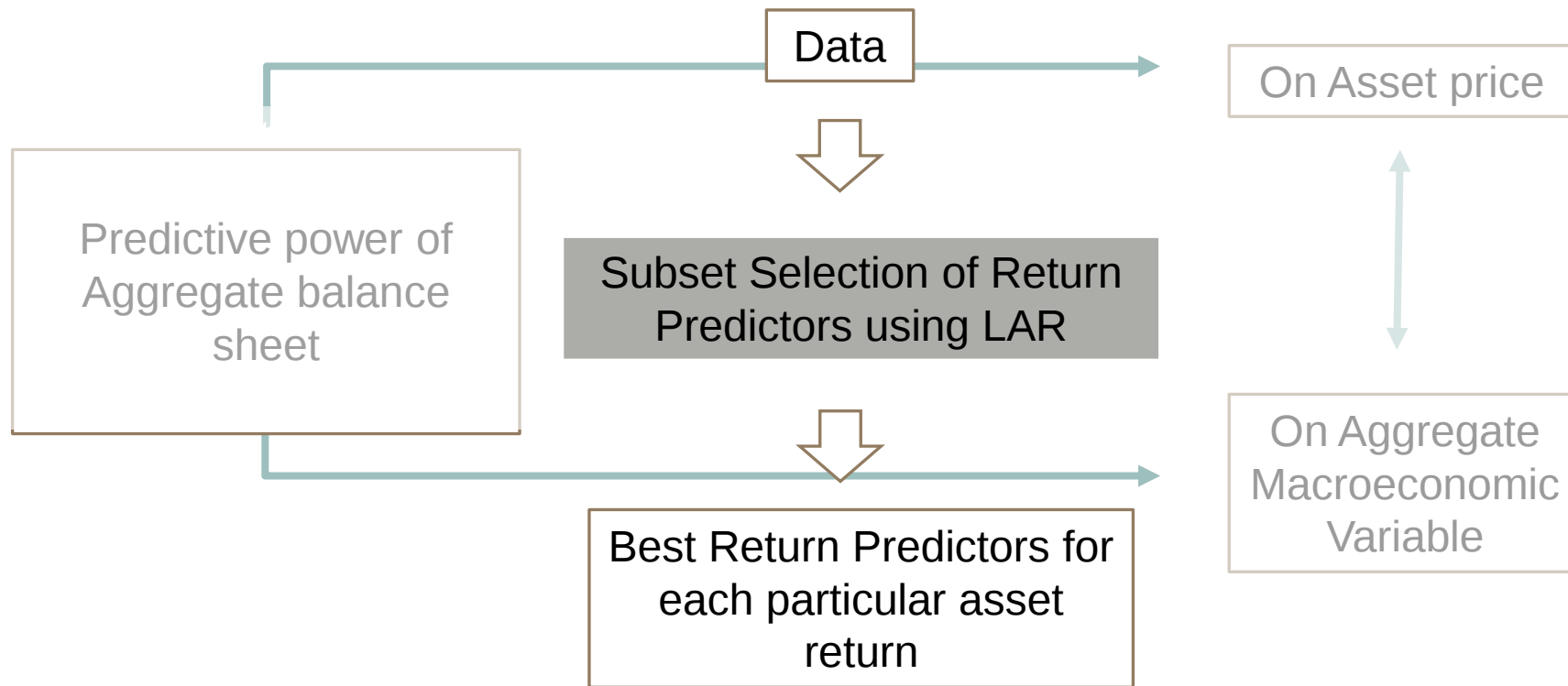
Benchmark Return Forecasting Factors

Mnemonic	Description
CAY	Log consumption wealth ratio
MKT	Fama French Excess Return on Equity Market Portfolio
SMB	Fama French Size Factor
HML	Fama French Value Factor
DPRATIO	Market Dividend Price Ratio
TERM	Term Spread (10year-3month)
DEF	Default Spread (Moody's Baa-Aaa)
RREL	3-month TBill minus its 4quarter moving average
CP	Cochrane Piazzesi Factor

Macro Series from the Bureau of Economic Analyses

Mnemonic	Description
GDP	Real Gross Domestic Product
C	Real Personal Consumption Expenditures
CD	Real Personal Consumption Expenditures: Durable Goods
CN	Real Personal Consumption Expenditures: Nondurable Goods
CS	Real Personal Consumption Expenditures: Services
I	Real Gross Private Domestic Investment
F	Real Private Fixed Investment
FN	Real Private Nonresidential Fixed Investment
FR	Real Private Residential Investment
XNET	Real Net Exports of Goods & Services
G	Real Government Consumption Expenditures & Gross Investment
JC	Personal Consumption Expenditures
JCXFE	PCE less Food & Energy
JCXEG	PCE Excluding Energy Goods & Services
JCD	PCE Durable Goods
JCN	PCE Nondurable Goods
JCS	PCE Services

DATA AND METHODOLOGY



DATA AND METHODOLOGY

THE PREDICTIVE RETURN

REGRESSION AND DATA

OVERVIEW

Best Return Predictors for Equity Portfolios

	Mkt	FF11	FF15	FF51	FF55	D1M1	D1M5	D5M1	D5M5	IGI
	Macro and Relative Pricing Factors					Macro and Relative Pricing Factors				
1st	qG	HML	qJCXEG	HML	qG	qG	qGDP	qCN	yJCN	qCS
2nd	HML	qJCXEG	qCN	CAY	qCN	SMB	HML	SMB	qCN	TERM
3rd	qCN	qG	yFR	SMB	RREL	CP	yCD	qG	CAY	MKT
4th	yFR	yJCS	qG	qCD	yJCN	yJCS	yCN	DPRATIO	yJCS	CP
5th	SMB	MKT	yJCS	yJCN	yFR	qCD	yFR	qCD	DEF	yCD
	Balance Sheet					Balance Sheet				
1st	ySBRDLR:levg	ySBRDLR:levg	ySBRDLR:levg	ySBRDLR:levg	yMMMf:agw	ySBRDLR:levg	yABS:agw	ySBRDLR:levg	qCB:levg	qSHADBNK:agw
2nd	yMORTPOOL:agw	yFINMF:agw	yMMMf:agw	yFGRF:agw	yMORTPOOL:agw	qFINBANK:agw	ySLGERF:agw	qCEF:agw	qABS:agw	ySBRDLR:levg
3rd	yMMMf:agw	yPPF:agw	qCEF:agw	yCB:levg	qCEF:agw	qMMMf:agw	qFINMF:agw	qSI:agw	qCEF:agw	yFINMF:agw
4th	yFGRF:agw	yMORTPOOL:agw	ySHADBNK:agw	qFINCO:agw	ySBRDLR:levg	qPPF:agw	yFGRF:agw	qABS:agw	yREIT:agw	qPPF:agw
5th	qABS:agw	qSBRDLR:levg	qREIT:agw	qMMMf:agw	yCU:levg	yMORTPOOL:agw	ySBRDLR:levg	yFGRF:agw	ySHADBNK:agw	qSI:agw
	All					All				
1st	ySBRDLR : levg	HML	ySBRDLR : levg	HML	qG	qG	yABS:agw	qCN	qCB:levg	qSHADBNK : agw
2nd	qG	ySBRDLR : levg	qJCXEG	CAY	yMMMf:agw	SMB	qGDP	SMB	qABS:agw	ySBRDLR : levg
3rd	HML	yFINMF:agw	yMMMf:agw	ySBRDLR : levg	yMORTPOOL:agw	ySBRDLR : levg	HML	ySBRDLR : levg	qCEF:agw	yFINMF:agw
4th	CAY	qJCXEG	qCEF:agw	SMB	qCEF:agw	CP	ySLGERF:agw	qG	yREIT:agw	MKT
5th	qCN	qPPF:agw	qG	qABS:agw	ySBRDLR : levg	qFINBANK:agw	yCD	DPRATIO	CAY	qCS

DATA AND METHODOLOGY

THE PREDICTIVE RETURN

REGRESSION AND DATA

OVERVIEW

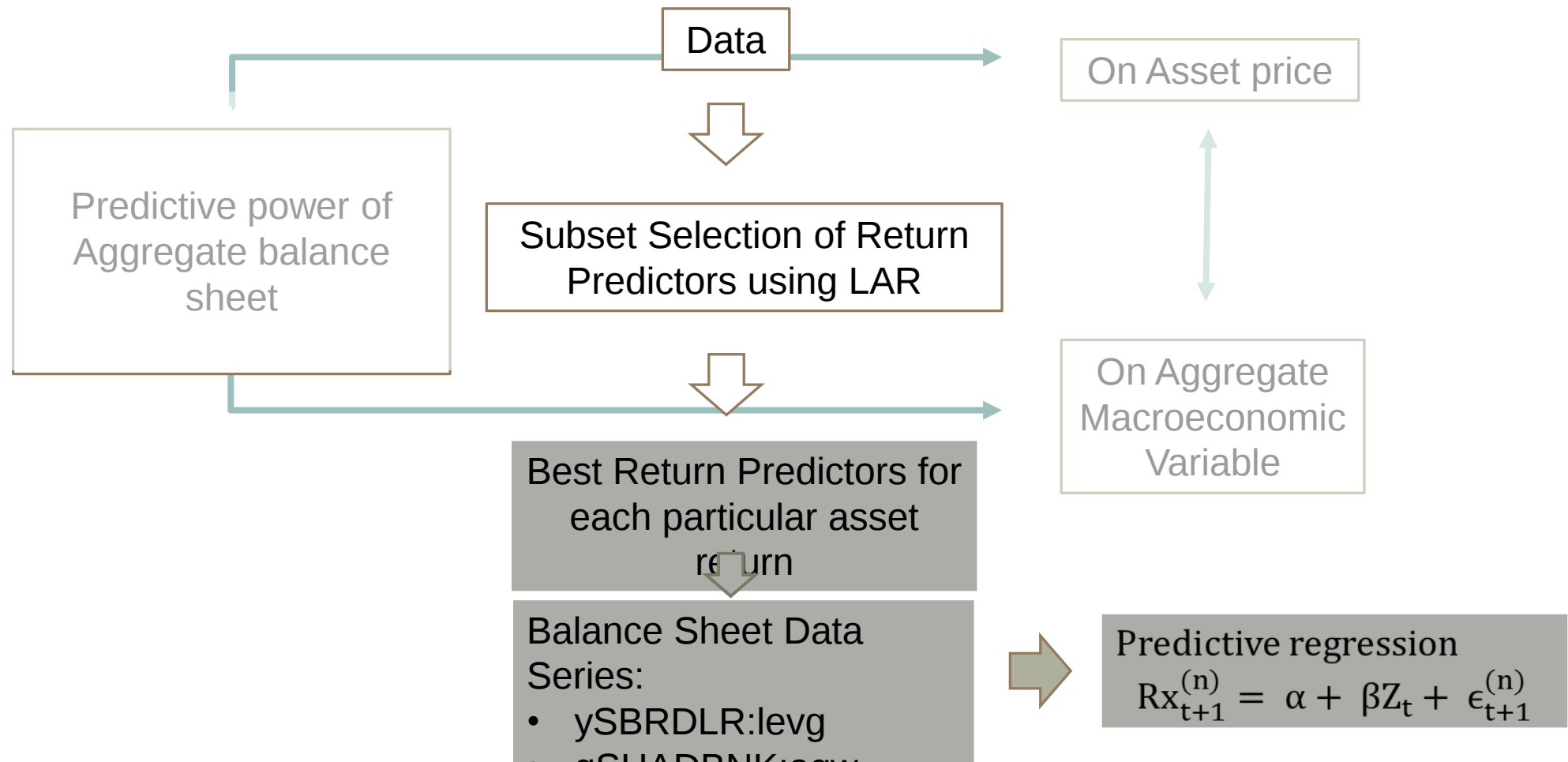
Best Return Predictors for Corporate Bonds

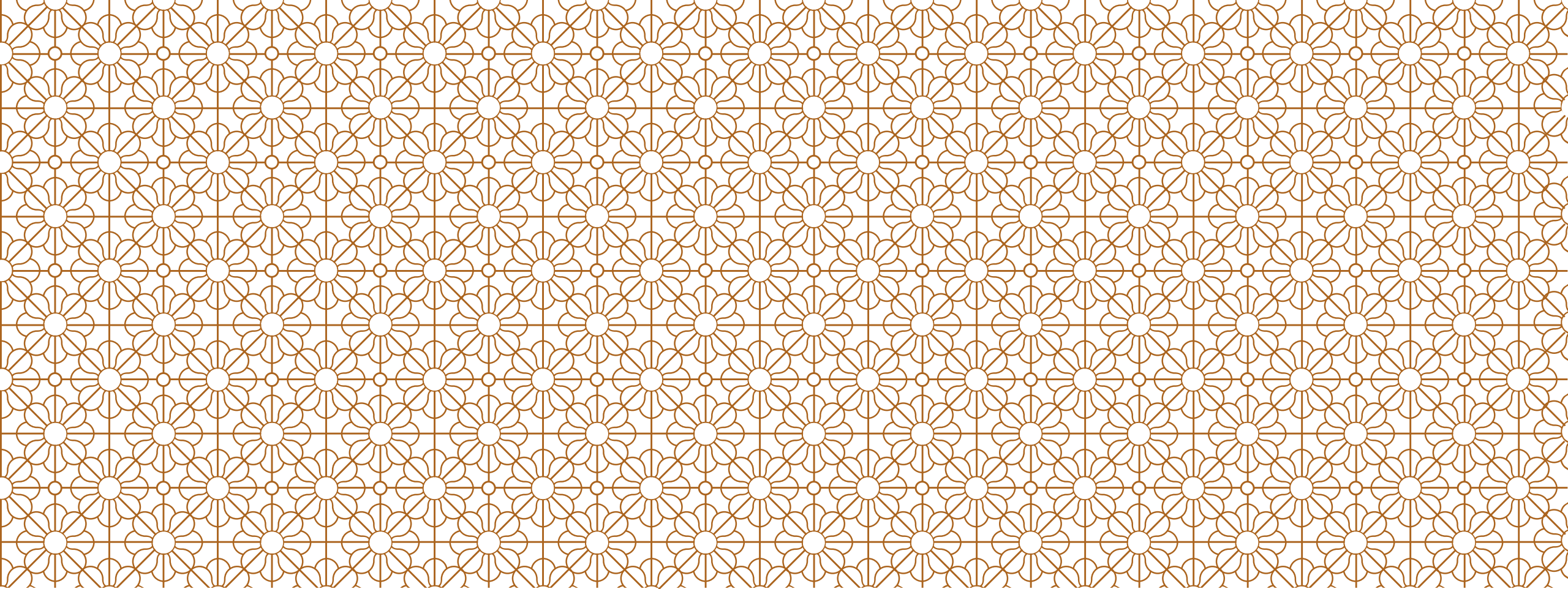
	IGU	IGF	Aaa	Aa	A
Macro and Relative Pricing Factors					
1st	yCD	yFN	CP	CP	CP
2nd	qJCN	CP	HML	qCS	qCS
3rd	TERM	qFN	qCS	HML	HML
4th	CP	qCS	yJC	qJCD	yFN
5th	qCS	HML	qJCD	MKT	MKT
Balance Sheet					
1st	qSHADBNK:agw	qSHADBNK:agw	qSHADBNK:agw	qSHADBNK:agw	qSHADBNK:agw
2nd	ySBRDLR:levg	ySBRDLR:levg	qCU:levg	qSI:agw	ySBRDLR:levg
3rd	qSBRDLR:levg	yFINMF:agw	qSI:agw	ySBRDLR:levg	yFINMF:agw
4th	qCB:levg	qSI:agw	qCB:levg	qFINMF:agw	qSI:agw
5th	qSI:agw	yMMMF:agw	ySBRDLR:levg	qPPF:agw	qFINMF:agw
All					
1st	qSHADBNK : agw	qSHADBNK : agw	qSHADBNK : agw	qSHADBNK : agw	qSHADBNK : agw
2nd	ySBRDLR : levg	yFN	qCU:levg	CP	ySBRDLR : levg
3rd	qSBRDLR:levg	ySBRDLR : levg	CP	qSI:agw	CP
4th	qCB:levg	CP	qSI:agw	HML	yFINMF:agw
5th	yCD	qSI:agw	HML	ySBRDLR : levg	qSI:agw

Best Return Predictors for Treasury Bonds

	Baa	CMT1	CMT2	CMT5	CMT7
Macro and Relative Pricing Factors					
1st	yFN	qCS	qCS	HML	HML
2nd	qJCN	CP	CP	CP	CP
3rd	qCS	yXNET	HML	qCS	qCS
4th	TERM	qJCS	yFR	yJCN	yJCN
5th	CAY	yFR	qJCD	yFR	yFR
Balance Sheet					
1st	qSHADBNK:agw	qSI:agw	qSI:agw	qSHADBNK:agw	qSHADBNK:agw
2nd	ySBRDLR:levg	qSHADBNK:agw	qSHADBNK:agw	qSI:agw	qSI:agw
3rd	yFINMF:agw	yMORTPOOL:agw	yMORTPOOL:agw	qCU:levg	qCU:levg
4th	qSBRDLR:levg	qMORTPOOL:agw	qREIT:agw	qCB:levg	qCEF:agw
5th	ySI:agw	qCB:levg	qCB:levg	yMORTPOOL:agw	qCB:levg
All					
1st	qSHADBNK : agw	qSI:agw	qSI:agw	qSHADBNK : agw	qSHADBNK : agw
2nd	ySBRDLR : levg	qCS	qSHADBNK : agw	qSI:agw	qSI:agw
3rd	yFINMF:agw	qSHADBNK : agw	qCS	qCU:levg	qCU:levg
4th	qJCN	yMORTPOOL:agw	CP	HML	HML
5th	yFN	qMORTPOOL:agw	HML	CP	yJCN

DATA AND METHODOLOGY





RESULTS

RESULTS

PREDICTIVE RETURN

REGRESSION

Equity Market Portfolio-MKT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MKT (lag)	-0.0402 (-0.501)	-0.0206 (-0.205)	-0.0445 (-0.490)	-0.0176 (-0.169)	-0.00891 (-0.0902)	-0.0549 (-0.596)	-0.141 (-1.892)
RREL	1.308 (1.453)						-0.529 (-0.520)
TERM		-0.131 (-0.211)					-1.094 (-1.243)
DEF			-1.867 (-0.870)				-5.628 (-1.792)
DPRATIO				-3.128 (-1.441)			-5.075 (-1.341)
cay					68.64 (1.890)		31.71 (0.542)
ySBRDLR:levg						-0.0814 (-2.721)	-0.116 (-3.490)
$\bar{R}^2$	-0.001	-0.022	-0.015	-0.005	-0.000	0.055	0.088

RESULTS

PREDICTIVE RETURN

REGRESSION

Large Size High Value Portfolio-FF55

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FF55 (lag)	0.0377 (0.562)	0.0706 (0.912)	0.0382 (0.523)	0.0717 (0.845)	0.0800 (0.984)	0.0804 (0.987)	-0.0508 (-0.744)
RREL	1.961 (1.816)						0.136 (0.137)
TERM		-0.260 (-0.330)					-0.931 (-0.836)
DEF			-2.271 (-0.868)				-6.464 (-1.610)
DPRATIO				-3.967 (-1.976)			-8.568 (-2.458)
cay					45.30 (1.123)		-39.60 (-0.662)
ySBRDLR:levg						-0.0700 (-2.058)	-0.0914 (-3.084)
$\bar{R}^2$	0.025	-0.016	-0.008	0.008	-0.008	0.037	0.079

RESULTS

PREDICTIVE RETURN

REGRESSION

Investment Grade Financial Bonds-IGF

	(1)	(2)	(3)	(4)	(5)	(6)
IGF (lag)	-0.288 (-1.332)	-0.277 (-1.280)	-0.290 (-1.326)	-0.325 (-1.319)	-0.225 (-1.615)	-0.249 (-1.712)
TERM	0.416 (1.803)					-0.968 (-3.615)
DEF		0.515 (0.584)				1.314 (2.097)
CP			0.499 (4.470)			0.773 (5.183)
ySBRDLR:levg				-0.0265 (-1.661)		-0.0329 (-3.037)
qSHADBNKagw					-1.512 (-4.644)	-1.848 (-6.620)
R^2	0.066	0.048	0.102	0.103	0.215	0.347

RESULTS

PREDICTIVE RETURN

REGRESSION

Baa Corporate Bond-BAA

	(1)	(2)	(3)	(4)	(5)	(6)
BAA (lag)	0.116 (1.012)	0.154 (1.200)	0.115 (1.085)	0.0621 (0.626)	0.0950 (0.940)	0.0211 (0.254)
TERM	0.520 (3.096)					-0.615 (-4.060)
DEF		1.679 (2.012)				1.765 (3.400)
CP			0.282 (1.376)			0.471 (3.435)
ySBRDLR_levg				-0.0333 (-2.464)		-0.0377 (-3.672)
qSHADBNKagw					-1.325 (-4.360)	-1.628 (-6.843)
$\bar{R}^2$	0.037	0.048	0.017	0.116	0.170	0.368

RESULTS PREDICTIVE RETURN REGRESSION

2-year Treasury-CMT2

	(1)	(2)	(3)	(4)	(5)
CMT2 (lag)	0.0334 (0.468)	0.0325 (0.461)	0.0519 (0.741)	0.0315 (0.483)	0.0353 (0.482)
TERM	0.0441 (0.437)				-0.439 (-2.919)
DEF		0.0301 (0.155)			0.659 (1.647)
CP			0.184 (2.142)		0.353 (2.942)
qSHADBNKagw				-0.469 (-3.523)	-0.562 (-3.853)
$\bar{R}^2$	-0.019	-0.021	0.031	0.081	0.173

This table reports coefficient estimates and the corresponding t-statistics from a regression of the excess return of the two-year constant maturity Treasury return on one-quarter lagged observations of several explanatory variables. These are the lagged two-year constant maturity Treasury return (CMT2 lag), the term spread (TERM), the default spread (DEF), the Cochrane-Piazzesi return forecasting factor, as well as the asset-weighted quarterly growth rate of shadow bank asset growth (qSHADBNKagw). All standard errors are Newey-West adjusted with a maximum lag length of 8 quarters. The bottom row shows the adjusted R-squared of each regression, respectively. The sample period is 1986Q1-2009Q2.

10-year Treasury-CMT10

	(1)	(2)	(3)	(4)	(5)
CMT10 (lag)	-0.0202 (-0.244)	-0.00268 (-0.0320)	0.0204 (0.245)	-0.0385 (-0.505)	0.00451 (0.0500)
TERM	0.467 (1.793)				-0.379 (-0.799)
DEF		-1.029 (-1.596)			-0.345 (-0.265)
CP			0.556 (2.551)		0.529 (1.451)
qSHADBNKagw				-1.678 (-3.795)	-1.696 (-3.799)
$\bar{R}^2$	-0.003	-0.011	0.027	0.119	0.136

This table reports coefficient estimates and the corresponding t-statistics from a regression of the excess return of the ten-year constant maturity Treasury return on one-quarter lagged observations of several explanatory variables. These are the lagged ten-year constant maturity Treasury return (CMT10 lag), the term spread (TERM), the default spread (DEF), the Cochrane-Piazzesi return forecasting factor, as well as the asset-weighted quarterly growth rate of shadow bank asset growth (qSHADBNKagw). All standard errors are Newey-West adjusted with a maximum lag length of 8 quarters. The bottom row shows the adjusted R-squared of each regression, respectively. The sample period is 1986Q1-2009Q2.

RESULTS FORECASTING EXCESS RETURNS: ROBUST TESTS

1. Are the results due to financial crisis?

- Subsample regression by excluding the data after 2007Q2
- The informational value of intermediary balance sheet was apparent before the crisis, and hence should be seen as a feature of the financial system at normal time

2. Alternative measures of financial intermediaries' balance sheet

- Liabilities: Financial Commercial Paper (FCP) and Primary Dealer Repos (REPO) instead of `qSHADBNK:agw` and `ySBRDLR:levg`
- Predictive Regression for Equity Portfolio- not significant even when control for other variables
- Predictive Regression for Bonds and Treasury Bonds- significant and more significant under multivariate regression

RESULTS FORECASTING MACROECONOMIC AGGREGATES

Macro Series from the Bureau of Economic Analyses

Mnemonic	Description
GDP	Real Gross Domestic Product
C	Real Personal Consumption Expenditures
CD	Real Personal Consumption Expenditures: Durable Goods
CN	Real Personal Consumption Expenditures: Nondurable Goods
CS	Real Personal Consumption Expenditures: Services
I	Real Gross Private Domestic Investment
F	Real Private Fixed Investment
FN	Real Private Nonresidential Fixed Investment
FR	Real Private Residential Investment
XNET	Real Net Exports of Goods & Services
G	Real Government Consumption Expenditures & Gross Investment
JC	Personal Consumption Expenditures
JCXFE	PCE less Food & Energy
JCXEG	PCE Excluding Energy Goods & Services
JCD	PCE Durable Goods
JCN	PCE Nondurable Goods
JCS	PCE Services

Predictive regression

$$R_{t+1}^{(n)} = \alpha + \beta Z_t + \epsilon_{t+1}^{(n)}$$

Balance Sheet Data

Series:

- ySBRDLR:levg
- qSHADBNK:agw

RESULTS FORECASTING MACROECONOMIC AGGREGATES

Macro Forecast: GDP growth

	(1)	(2)	(3)	(4)	(5)	(6)
yGDP (lag)	1.00 (13.05)	0.89 (15.97)	1.00 (12.86)	0.99 (12.60)	0.99 (14.27)	0.80 (14.67)
FFR	0.00 (0.18)	-0.00 (-0.81)	-0.00 (-0.63)	-0.00 (-0.95)	0.00 (0.14)	0.00 (0.37)
TERM	0.00 (1.57)				0.00 (2.12)	0.00 (3.84)
DEF		-0.01 (-2.98)				-0.01 (-4.92)
ySBRDLR:levg			-0.00 (-0.29)		0.00 (0.26)	-0.00 (-0.76)
qSHADBANK:agw				0.00 (2.21)	0.00 (2.15)	0.00 (3.07)
$\bar{R}^2$	0.82	0.84	0.82	0.82	0.83	0.86

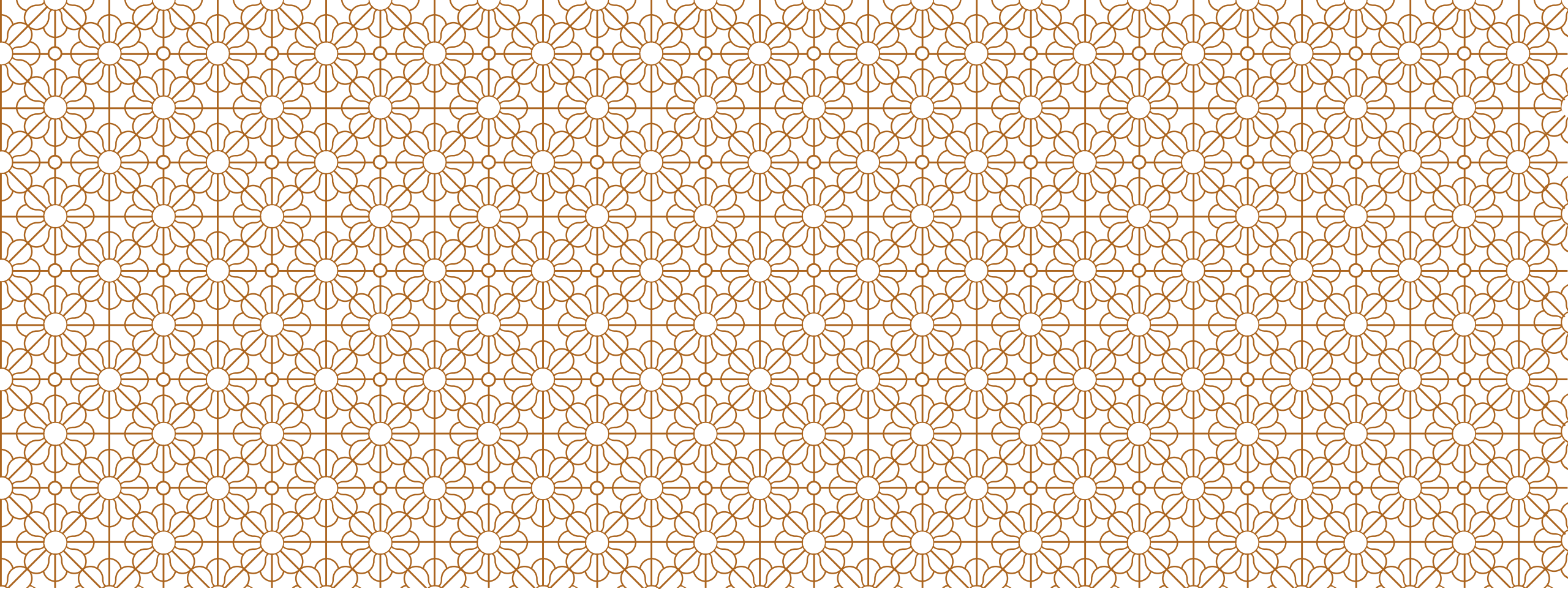
This table reports coefficient estimates and the corresponding t-statistics from a regression of the annual growth rate of real GDP (yGDP) on its own lag as well as on one-quarter lagged observations of several explanatory variables. These are the Effective Federal Funds Rate (FFR), the term spread (TERM), the default spread (DEF), the annual growth rate of security broker dealer leverage growth (ySBRDLR:levg), as well as the asset-weighted quarterly growth rate of shadow bank asset growth (qSHADBANK:agw). All standard errors are Newey-West adjusted with a maximum lag length of 8 quarters. The bottom row shows the adjusted R-squared of each regression, respectively. The sample period is 1986Q1-2009Q2.

RESULTS FORECASTING MACROECONOMIC AGGREGATES

Macro Forecasts: Total PCE Inflation

	(1)	(2)	(3)	(4)	(5)	(6)
yJC (lag)	0.76 (13.94)	0.72 (11.22)	0.74 (10.85)	0.76 (16.77)	0.75 (14.11)	0.69 (12.67)
FFR	0.00 (0.57)	0.00 (0.24)	0.00 (0.71)	0.00 (0.04)	0.00 (0.50)	0.00 (0.21)
TERM	0.00 (0.10)				0.00 (0.78)	0.00 (1.37)
DEF		-0.00 (-1.62)				-0.01 (-2.85)
ySBRDLR:levg			-0.00 (-1.73)		-0.00 (-1.33)	-0.00 (-1.76)
qSHADBANK:agw				0.00 (3.96)	0.00 (3.94)	0.00 (4.45)
$\bar{R}^2$	0.48	0.52	0.50	0.53	0.53	0.58

This table reports coefficient estimates and the corresponding t-statistics from a regression of the annual inflation rate for total Personal Consumption Expenditures (yJC) on its own lag as well as on one-quarter lagged observations of several explanatory variables. These are the Effective Federal Funds Rate (FFR), the term spread (TERM), the default spread (DEF), the annual growth rate of security broker dealer leverage growth (ySBRDLR:levg), as well as the asset-weighted quarterly growth rate of shadow bank asset growth (qSHADBANK:agw). All standard errors are Newey-West adjusted with a maximum lag length of 8 quarters. The bottom row shows the adjusted R-squared of each regression, respectively. The sample period is 1986Q1-2009Q2.

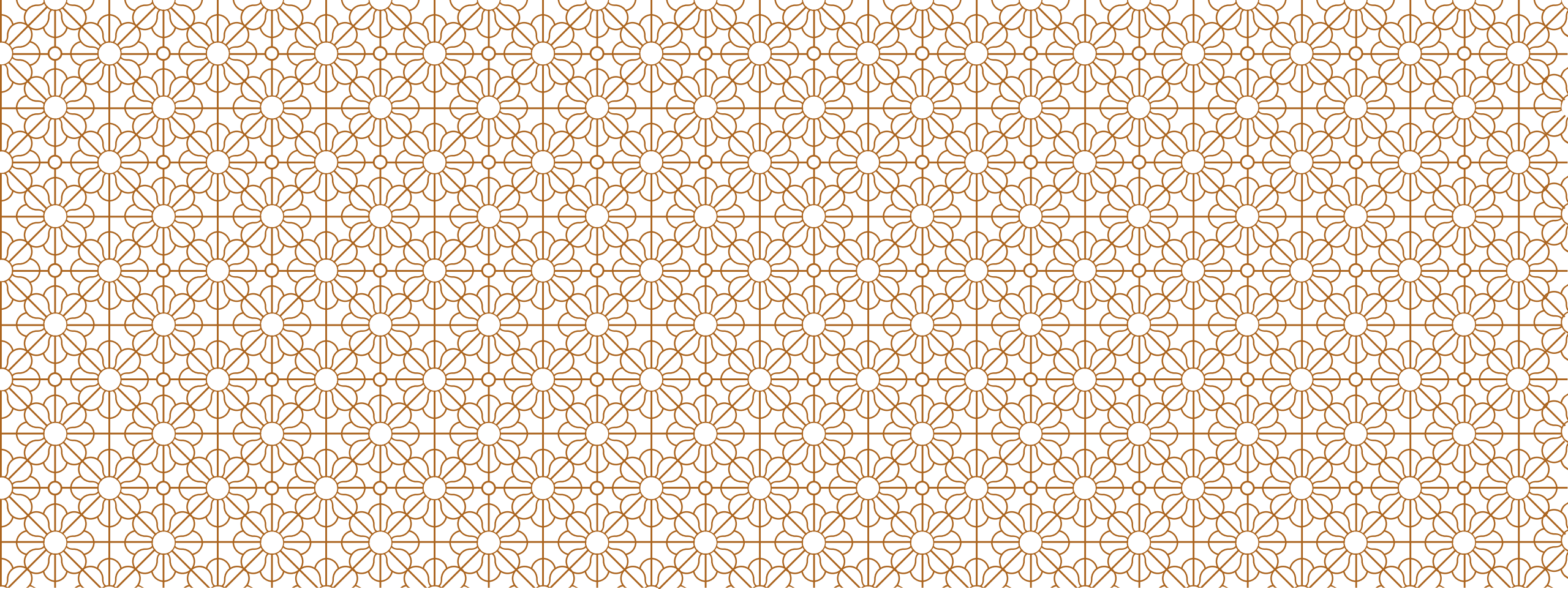


SUMMARY AND POLICY IMPLICATIONS

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Summary

- Asset Pricing – credit supply frictions play important role in setting risk premia, possibly through the operation of balance sheet constraints and associated risk appetite effects.
- Structural Macro Model – balance sheet growth of intermediaries, especially in the shadow banking sector, hold important information for the evolution of future real activity and inflation
- Financial intermediary balance sheet management matters for real economy, as well as for the determination of risk premia. These findings have important implications for the conduct of macroprudential and monetary policies



Q & A |