

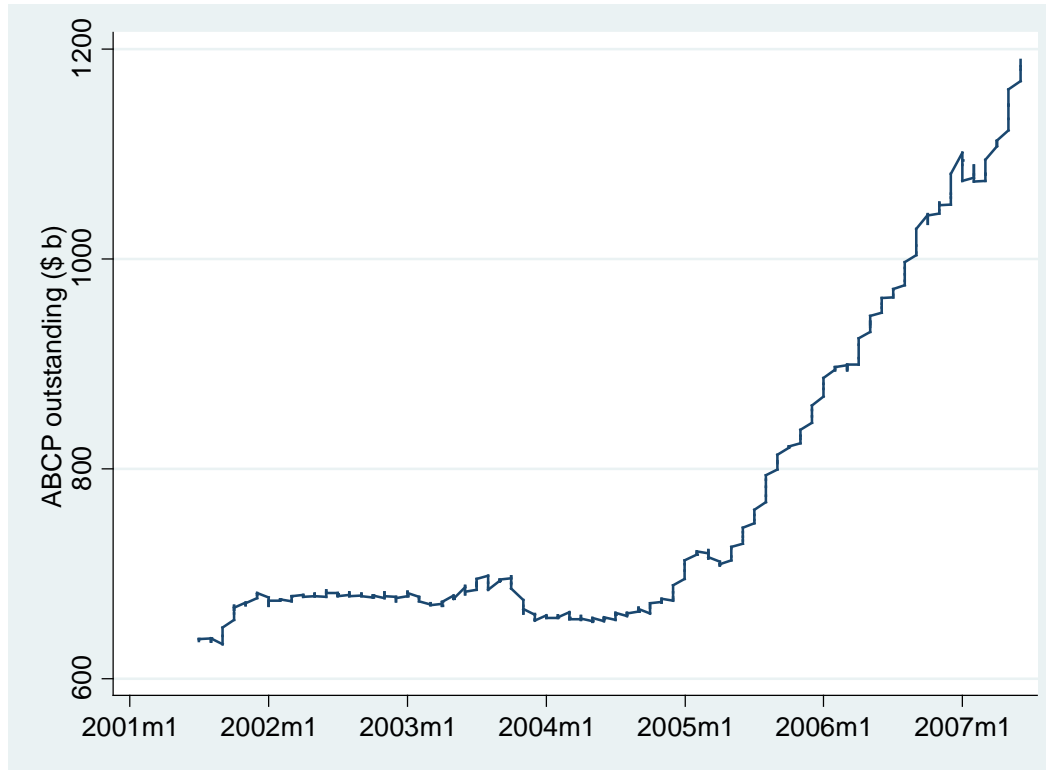
Money Creation and the Shadow Banking System

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Low Frequency Patterns



- ABCP outstanding doubled between 2004 and 2007.
- Similar patterns in other types of short-term shadow bank debt.
- What drove this growth?

Introduction

- One explanation: demand for “money-like” drove the rapid growth of the shadow banking system.
 - Money-like claims not necessarily used in transactions.
 - But have the safety and liquidity to be short-term stores of value.
- An old idea: Providing such claims is a key role of financial intermediaries.
- With two new twists:
 - Argue that investors treated short-term debt of shadow banks as a money-like claim.
 - Argue that there was rising demand for such claims in the mid 2000s.

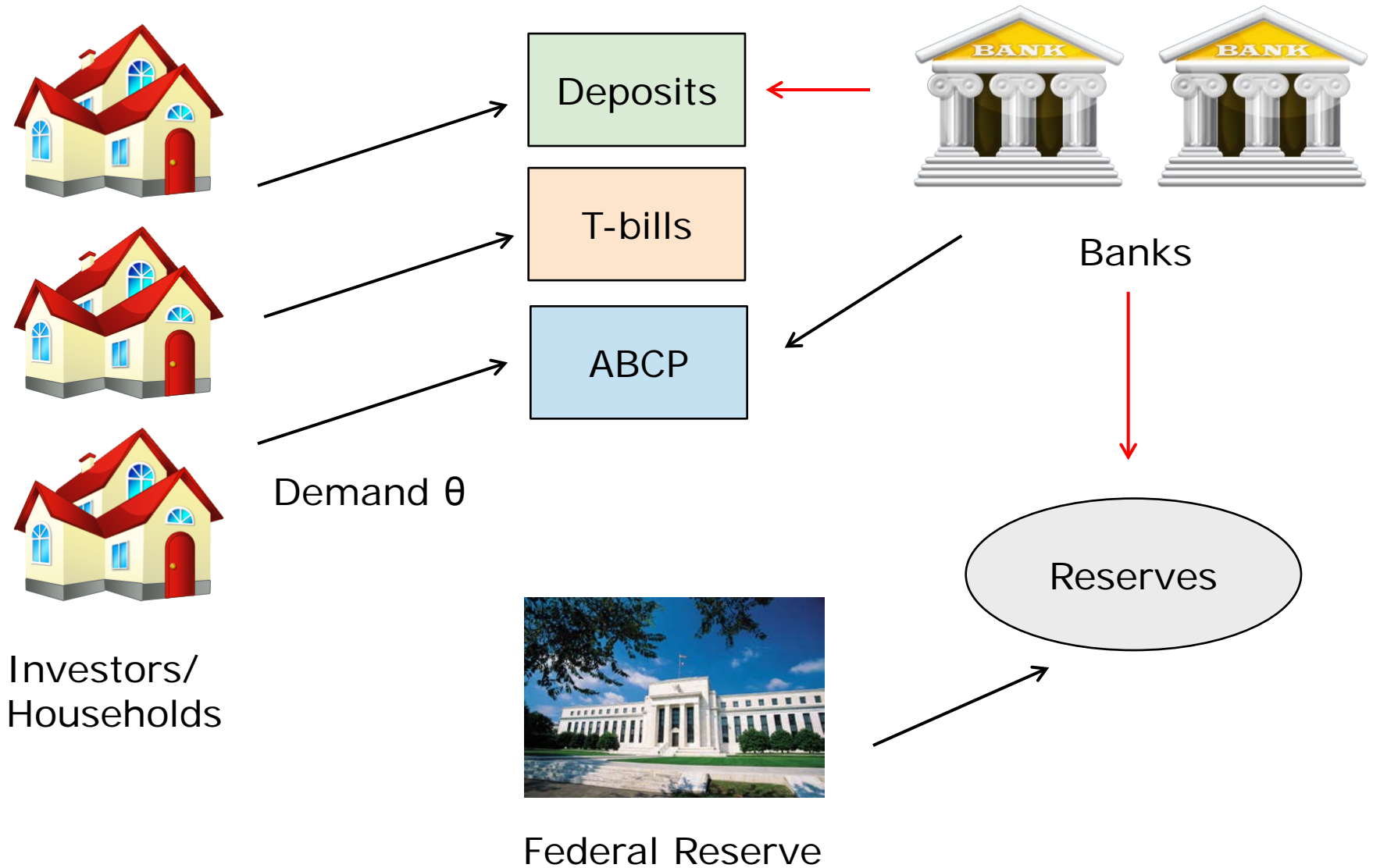
Introduction

- Focus on establishing that ABCP is “money-like”.
- Imagine a world where:
 - Investors/households pay a premium for claims that provide money services.
 - Three types of claims: deposits, T-bills, and ABCP provide different amounts of money services.
 - Demand for monetary services is linked to monetary policy through a reserve requirement for deposits.
 - Banking sector can manufacture deposits and ABCP.
- Consider shocks to household demand for money services. Derive implications for:
 - Spreads (e.g., ABCP – Treasury bill spread)
 - Reserve injections by the Fed
 - ABCP issuance by the banking sector

Introduction

- Take these predictions to the data.
- Look at high-frequency (weekly) data in the pre-crisis (July 2001-June 2007) period.
 - At high frequencies there is likely to be variation in demand for money based on inventory/payroll schedules.
 - Strip out low-frequency variation to help rule out slower-moving variation in fundamentals in some specifications.
 - Focus on ABCP because of data availability.
- Empirical Results
 - The data suggest that the shadow banking sector caters to demand for money services by issuing ABCP.
 - Evidence is inconsistent with other explanations.

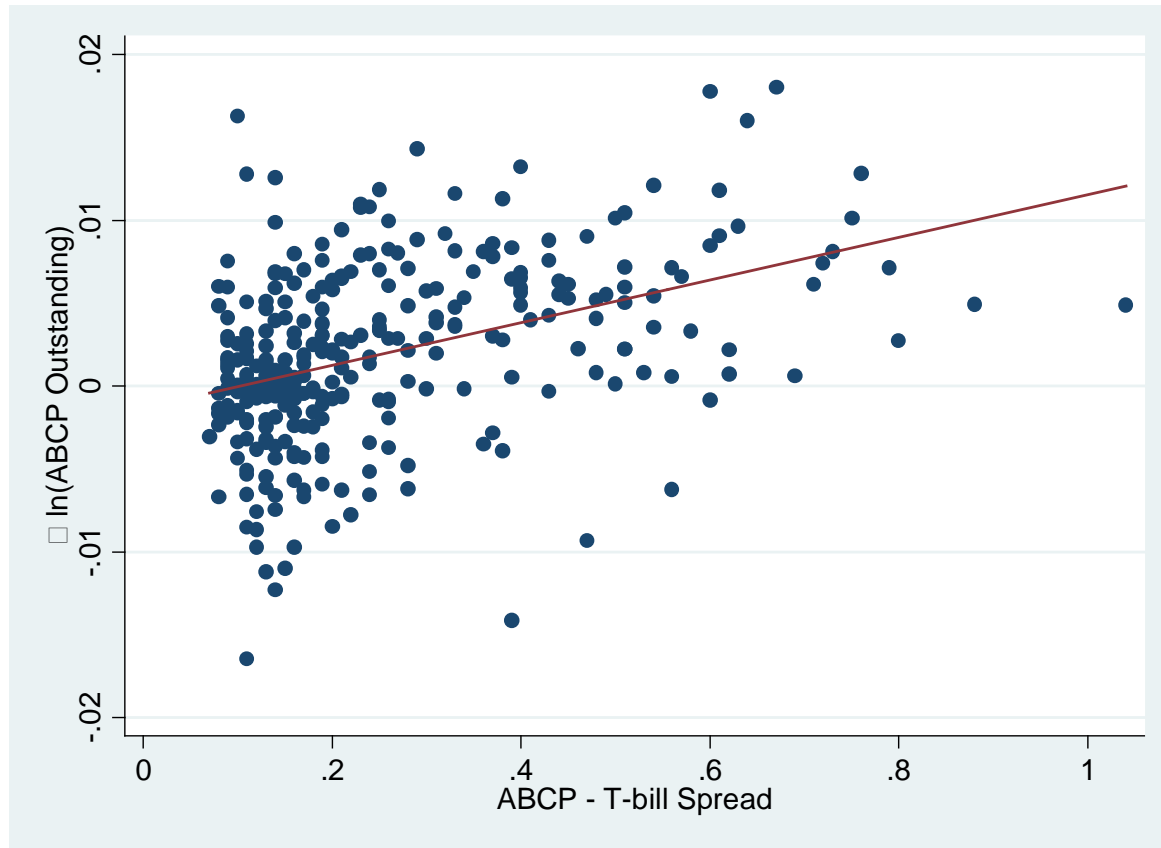
Model: Overview



Model Predictions

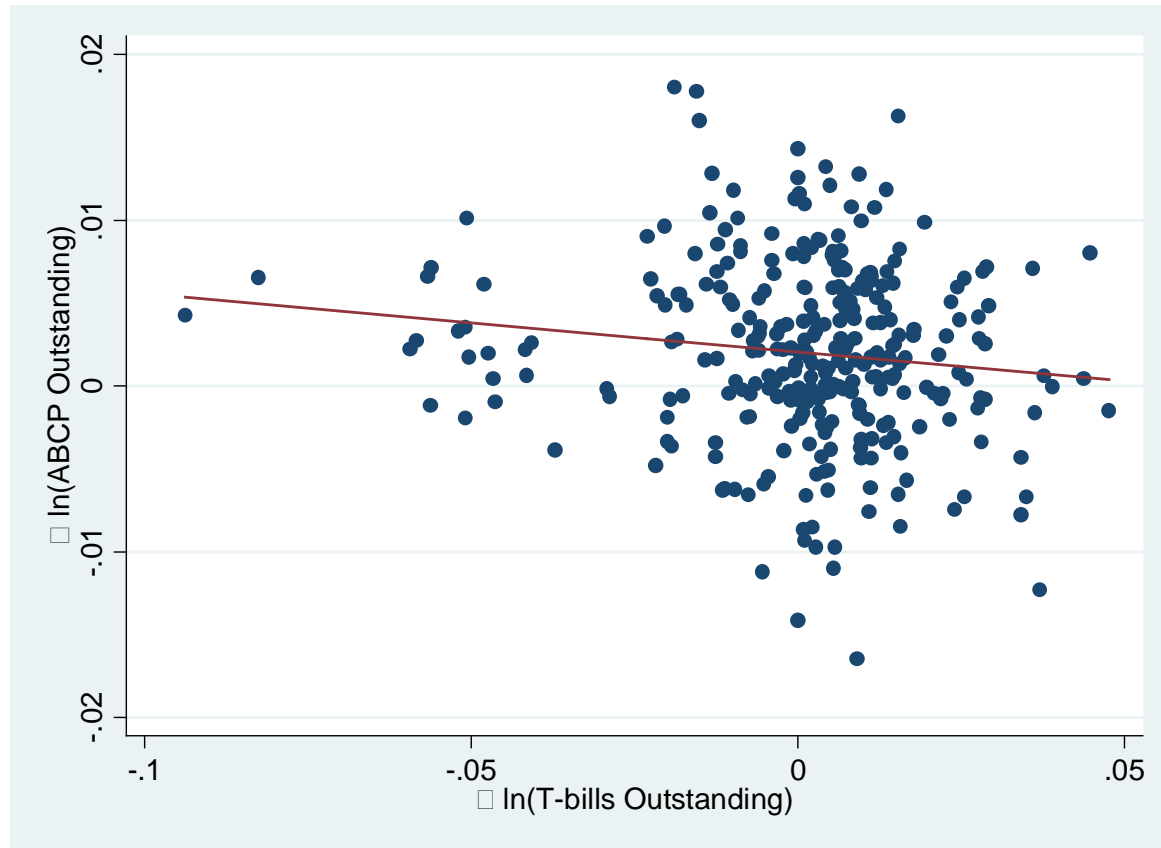
1. Shocks to money demand increase the ABCP – T-bill spread.
 - Increased demand drives down yields on both ABCP and T-bills.
 - But T-bill yields fall further.
2. Banks respond to money demand shocks by issuing ABCP.
 - #1 and #2 → High spreads should forecast issuance.
3. ABCP outstanding is negatively correlated with T-bills outstanding.
 - ST debt issued by the government crowds out shadow bank debt.
4. Fed responds to money demand shocks by injecting reserves.
 - #1 and #3 → High spreads should forecast reserve injections.
5. Fed Funds is positively correlated with the ABCP – T-bill spread.

ABCP Net Issuance and Spreads



- Issuance increases when liquidity premia are high.

ABCP Net Issuance and T-bill Net Issuance



- T-bills can crowd out ABCP.

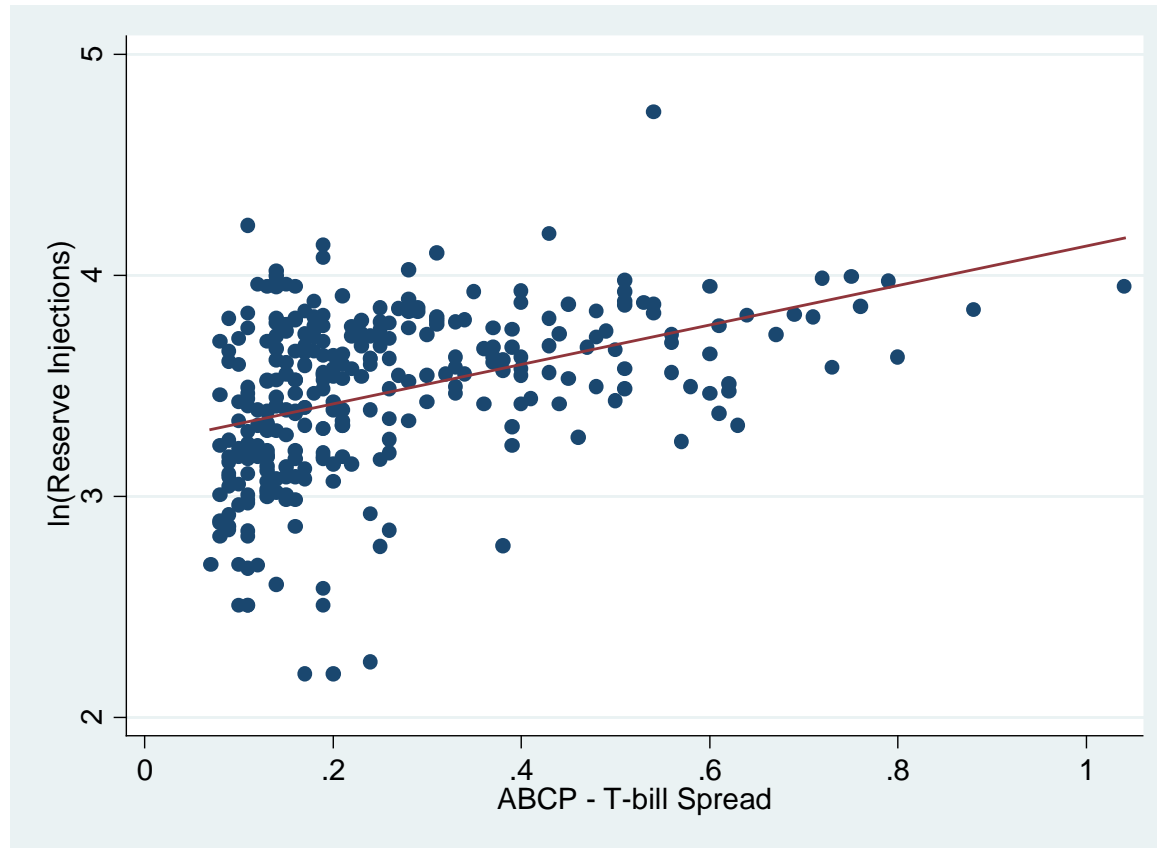
ABCP Gross Issuance and Spreads: OLS

$$\ln(GROSS_ISSUANCE_t) = \alpha + \beta \cdot SPREAD_{t-1} + \varepsilon_t.$$

Maturity(days):	1-4	5-9	10-20	21-40
4w ABCP - T-bill _{t-1}	0.258*** (0.094)	0.262 (0.188)	0.173 (0.152)	0.038 (0.20)
ln(Issuance _{t-1})	-0.022 (0.071)	-0.216*** (0.070)	0.052 (0.075)	0.04 (0.070)
ln(ABCP Out _{t-1})	-1.791 (1.511)	-0.45 (3.023)	-3.356 (2.666)	3.76 (2.805)
Residual R ²	0.023	0.039	0.005	0.003
N	303	303	303	303
Month FE	Y	Y	Y	Y

- Response is largely in short-maturity ABCP.

Reserve Injections and Spreads



- Reserve injections are high when liquidity premia are high.

Fed Funds and Spreads

$$\Delta SPREAD_t = \alpha + \beta \cdot \Delta (Fed\ Funds - Target)_t + \varepsilon_t$$

	Weekly		Daily	
4w ABCP - T-bill _{t-1}	0.103	0.168**	0.165***	0.196***
	(0.100)	(0.076)	(0.032)	(0.030)
Residual R ²	0.006	0.224	0.044	0.056
N	251	251	1039	1039
Month FE	N	Y	N	Y

- Weak evidence in weekly data → Fed is adjusting reserve supply to keep Fed Funds at target.
 - Stronger evidence in daily data → Fed cannot instantaneously offset unanticipated shocks.

Low Frequency Patterns

- Low-frequency data:
 - ABCP outstanding grew from \$660b to \$1.2t between June 2004 and July 2007.
 - ABCP – T-bill spread was 21 bps higher (1σ) over this period than it was from June 2001-June 2004.
 - This is consistent with the idea that the growth in quantities was at least partially driven by demand.
- A large shift in quantities coupled with a relatively smaller change in prices.
 - If the low frequency changes are demand shifts, this suggests that supply is quite elastic.
 - Financial innovation means that the supply (issuance) response to demand shocks has gotten larger over time.

Conclusion

- Weekly data from the pre-crisis period are consistent with a model where the shadow banking system responds to money demand.
- Macro/financial stability implications:
 - Fed's conduct of monetary policy may affect incentives for private money creation.
 - Liquidity premia (OIS – T-bill, ABCP – T-bill) may be a good measure of incentives for money creation.
 - Banking system may be more responsive to these incentives than it was in the past.
- Thanks!