



Short-Term Debt as Bridge Financing: Evidence from the Commercial Paper Market

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Introduction

- Most evidence on why firms use short-term debt is from short-term bank debt.
- Little is known about why firms use non-intermediated short-term debt.
- We study this question by analyzing the commercial paper market.
 - Fed intervention in CP market in 2008-2009 highlights its importance to policymakers.

Commercial Paper (CP)

- Short-term public debt.
 - Maturity up to 270 days, average about 45 days, often rolled over.
 - Restricted to firms with high credit quality.
- Important funding source.
 - Nonfinancial CP outstanding:
 - Average 1994-2006: \$154 billion.
 - Peak in 8/2000: \$312 billion.
 - CP issuers account for 25%-33% of Compu-
stat firms' market cap, sales, and investment.

This Paper

- Analyzes comprehensive data set of U.S. nonfinancial CP issuers.
 - Complete history of CP ratings and CP entry/exit dates from 1971 to 2005.
 - Annual CP borrowings from 1991 to 2008.
- Compare CP issuers to firms that could issue CP but choose not to do so.
- Test motives behind CP issuance.
 - Reduce frictions from moral hazard, asymmetric information, or transaction costs?

Transaction Cost Hypothesis

- CP reduces transaction costs associated with raising capital for new investment.
 - Quick to issue, has low issuance costs, allows firms to borrow exactly as much as needed.
 - Well suited as start-up financing for projects with need for quick financing, uncertain funding needs, and those too small for economical bond issuance.
 - Prediction: Once firms know size of funding needs, had time to access bond market, and cost-efficient bond issuance size is reached, CP should be refinanced in the bond market.

Main Results

- Support for transaction cost hypothesis:
 - CP used to bridge finance capital expenditures and acquisitions, later refinanced by bonds.
 - Bond issuance increases after CP entry and is positively correlated with lagged CP borrowing.
 - In 37% of firm-years when CP firms issue bonds, firms say proceeds may be used to refinance CP.
 - In random sample of 40 CP-financed acquisitions, firms repay at least half (all) of the CP within a median time of about 3 (8) months, mostly with bonds.
 - CP access associated with lower bond underwriting spreads.

Main Results

- Little support for agency and asymmetric information hypotheses.
 - Difficult to reconcile with quick refinancing.
 - Firms with more severe agency or asymmetric info. problems do not use more CP.
 - Some evidence that firms with more severe agency problems use less CP.
- Main disadvantage of CP: rollover risk.
 - Firms with more rollover risk use less CP.
 - In times of high rollover risk, CP used less.

Main Results

- CP outstanding declined by more than 60% in 2009 as high quality issuers refinanced CP through bonds.
 - Response to increased rollover risk, as indicated by much lower maturity.
- CP is cheaper alternative to credit lines for firms with low rollover risk.
 - After CP entry, much less credit line usage.
 - Firms with more rollover risk use less CP, more credit lines.

Contribution

- Why do firms use short-term, non-intermediated debt such as CP?
 - To reduce transaction costs associated with raising capital for new investment.
 - Main cost: rollover risk. Alleviated by refinancing CP through bonds.
 - For firms with low rollover risk, CP cheaper alternative to credit lines.

Literature

- Kashyap, Stein, Wilcox (1993).
- Calomiris, Himmelberg, Wachtel (1995).
 - CP used to finance working capital.
- CP in financial crisis.
 - Anderson and Gascon (2009), Gao and Yun (2010, 2012), Kacperczyk and Schnabl (2010).
- Corporate liquidity from credit lines/cash.
 - Sufi (2009), Campello, Graham, Harvey (2010), Lins, Servaes, Tufano (2010), Campello et al. (2011), Acharya, Almeida, Campello (2013)...

Some Background on CP

- CP ratings since 1971.
 - Only P-1 and P-2 (or A-1 and A-2) can issue significant amounts.
 - Downgrade to P-3 (or A-3) interpreted as exit.
- Very low default risk.
 - High quality firms.
 - Backup credit lines.
 - Process of orderly exit.
 - Typically, very small spread over T-bills.
 - Between 1998 and 2010, average spread of 90 day P-1-rated CP over three month Treasury bills was 0.33%.

Hypotheses

- Which firms benefit from issuing near-money security such as CP and why?
 - Transaction cost hypothesis.
 - CP reduces transaction costs associated with raising capital for new investment.
 - CP quick to issue (no SEC registration), has low issuance costs (no underwriting fees), allows firms to borrow exactly as much as they need.
 - Well suited to finance projects quickly as opportunities arise, for projects with uncertain funding needs, and projects too small for cost-efficient bond issuance.

Transaction Cost Hypothesis

- Unlike CP, bonds cannot be issued immediately, have higher issuance costs.
 - Bonds especially inefficient for projects with uncertain funding needs, projects with closure risk, and small projects.
 - Borrowing larger amount than may be needed is costly: waiting periods and premia in call provisions.
 - CP should be refinanced by bonds once funding needs known, project closed, firms had time to access bond market, cost-efficient size for bond issuance is reached.
 - CP access can also lower bond underwriting costs.

Asymmetric Information Hypothesis

- Firms use CP to reduce problems arising from asymmetric information.
 - Prediction: Firms with more severe asymmetric information problems use more CP.
 - In general, no reason to use CP only as bridge financing. Except Diamond (1991a): Use short-term debt until market learns high credit quality and then issue long-term debt. Firms should refinance CP after bond upgrades.
 - Issuing safe CP may also reduce adverse selection costs of issuing riskier debt like bonds. Market reaction to bonds refinancing CP should be better.

Agency Hypothesis

- Firms use CP to reduce agency problems.
 - Short-term debt disciplines managers.
 - Even more so than long-term debt: Zwiebel (1996).
 - Prediction: Firms with more severe agency problems use more CP.
 - In general, if CP disciplines managers, it should stay in place and not be refinanced.

CP versus Credit Lines (CL)

- CL also quick to access, allow firms to borrow exactly as much as needed.
 - For firms with low rollover risk, CP cheaper.
 - Saves on costs of financial intermediation; also liquidity premium.
 - Especially useful for firms with little need for monitoring and screening by banks.
 - CP has larger rollover risk.
 - Firms with high rollover risk prefer credit lines.
 - When market-wide rollover risk is high (high VIX, high default spreads), use less CP.

Data

- Moody's CP ratings and ratings changes from 1971 to 2005.
- Complete S&P CP and long-term ratings until 2008.
- Hand collected annual CP borrowing amounts from 1991 to 2008 from 10-Ks.
 - Find data for 321 firms for which we know the exact entry date into CP market.

Sample Construction

- Entry into CP market:
 - First time a firm sets up CP program.
 - Date of first CP rating of P-1/P-2 (A-1/A-2) from Moody's (S&P). The earlier date is used when rated by both agencies.
- Exit from CP market:
 - Date a firm's CP rating is withdrawn from both Moody's and S&P or severe downgrade.
 - Severe downgrade: Downgrade from P-1 or P-2 to P-3 or lower and never upgraded afterwards.
 - Ignore temporary exit.

Control Samples

- Firms that could establish a CP program but choose not to (never have CP rating).
 - Close connection between long-term and short-term ratings.
 - Firms with a rating of BBB or better could establish CP program (P-1 or P-2).
 - Age-matched control sample.
 - Matched by CP entry year, industry, and age.
 - Investment-matched control sample.
 - Matched by CP entry year, industry, and capex.

Capital Expenditures and Cash around CP Entry (Table I)

- Firms increase capital expenditures after entering the CP market.
 - Also already in the years before CP entry.
 - They draw down their cash holdings substantially before CP entry: from a mean of 9.0% of assets in year -3 to 5.4% in the CP entry year.
 - Suggests that firms enter CP market to finance sustained increases in investment once they have depleted their cash holdings.

CP Entry Probit (Table III)

	Age-Matched Sample	Investment-Matched Sample
Earnings Volatility	-2.03*** (-2.69)	-2.84** (-2.07)
Cash	-1.71*** (-4.92)	-1.32*** (-2.98)
Change in Capex	1.78*** (3.04)	0.78 (0.99)
Capex	0.97** (2.18)	
Idiosyncratic Risk	-0.0028 (-0.37)	-0.0054 (-0.50)
Free Cash Flow	-1.08*** (-3.89)	-0.14 (-0.33)
Control Variables	Yes	Yes
Pseudo R-Squared	0.133	0.194
Observations	741	464

CP Entry Probits

- Firms more likely to establish CP programs if:
 - They increase capital expenditures.
 - One s.d. increase in change in capex increases probability of CP program by 7.6 percentage points.
 - Their rollover risk is smaller.
 - One s.d. increase in earnings volatility reduces probability of CP program by 6.3 percentage points.
 - They have less cash.
 - One s.d. increase in cash reduces probability of CP program by 12.6 percentage points.

Costs of CP versus Credit Lines

- CP is cheaper than credit lines (Table IV).
 - Mean annual difference from 1998 to 2010 for 90-day P-1 CP versus short-term credit lines of similar ratings: 93 basispoints.
 - P-2-rated 90-day CP versus short-term credit lines of similar ratings: 84 basispoints.
 - Similar differences to long-term credit lines.

Credit Line Usage Data

- Hand-collected credit line draws and maximum borrowing allowed from 10-Ks.
 - For all the 49 CP issuers that established CP programs between 1998 and 2005 and did not terminate them over the next three years.
 - Similar data collection for the corresponding age-matched control firms.
 - 45 CP issuers and 43 control firms have sufficient data available to be included in the analysis.

CP and Credit Lines (Table V.B)

	Control Firms		CP Firms	
	Mean Before CP Entry	Mean After CP Entry	Mean Before CP Entry	Mean After CP Entry
CL /Assets	8.7%	7.1%	6.5%	3.4%
CL/CL Max.	33.7%	27.2%	34.2%	13.5%
CP/Assets	0%	0%	0%	5.2%
CP/CP Max.				37.0%

CP Borrowing Amounts (T. VI.C)

	CP/Assets	CP/Assets	Non-CP/Assets	Non-CP/Assets	CP/(CP+CL)	CP/(CP+CL)
Capex	0.20*** (3.67)	0.12* (1.88)	0.11 (1.19)	0.25*** (2.62)	0.73 (0.24)	0.47 (0.15)
Earnings Vol.	-0.21*** (-2.80)	-0.19** (-2.54)	0.40*** (2.73)	0.35*** (2.76)	-1.76** (-2.24)	-1.61* (-2.01)
Lag Cash	-0.096*** (-3.65)	-0.064** (-2.42)	0.021 (0.35)	-0.027 (-0.45)	-0.31 (-0.39)	-0.78 (-0.76)
Acquisitions	0.14*** (3.67)	0.12*** (3.27)	0.33*** (6.17)	0.34*** (6.78)	0.52 (0.73)	0.79 (1.02)
Idiosync. Risk	0.00053 (1.14)	-0.000067 (-0.17)	0.00095 (1.35)	0.00047 (0.45)	-0.011 (-1.05)	-0.012 (-1.24)
Free Cash Flow	0.046 (1.39)	0.042 (1.21)	-0.033 (-0.74)	-0.036 (-0.76)	1.38* (1.76)	1.70** (2.44)
G-Index	-0.0046*** (-2.76)	-0.0035** (-2.04)	0.0042* (1.94)	0.0017 (0.80)	0.0074 (0.075)	0.040 (0.39)
High VIX	-0.0090*** (-3.20)		0.019*** (4.37)		-0.20*** (-3.20)	
Control Var.	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	No	Yes
R-squared	0.204	0.242	0.537	0.576	0.324	0.398

Data from Bond Prospectuses

- Hand collected data on the use of proceeds from bond issues.
 - Search bond prospectuses and supplements (S-3, 424B) for all 1128 firm-years since 1993 when FISC indicates CP issuer issued bonds.
 - Does “use of proceeds” section indicate proceeds are intended at least in part to refinance CP? Only count instances in which CP is explicitly mentioned.
 - In 37% of firm-years, at least one filing mentions that proceeds may be used to refinance CP.
 - Probably a conservative estimate.

Acquisition Bridge Financing

- Random sample of 40 acquisitions financed at least partially by CP.
 - At most 5 per firm, 24 different acquirers.
 - Hand collected data from firms' financial filings on how much CP was used to finance acquisition and how it was repaid or refinanced.

Acquisition Bridge Financing (Table VIII.A)

	Obs.	Mean	Median
Transaction Value (\$million)	34	919	345
CP Used (\$million)	34	701	272
Time taken to repay at least half of CP used (months)	40	5.8	3.25
Time taken to repay all CP used (months)	40	9.2	8.25

Acquisition Bridge Financing

- Source of CP repayment (several sources possible for single acquisition):
 - Bond Issue: 27, Bank Financing: 8, Stock Offering: 2, Proceeds from Divestitures: 2; Tax Refund: 1; Unknown: 5 (Table VIII.A).
 - No instance of bond rating upgrade between acquisition and CP refinancing through bonds (T.VIII.B). Inconsistent with Diamond (1991a).
 - Stock market reaction to bonds refinancing CP not better than to other bonds (Table VIII.C). Inconsistent with asymmetric information hypothesis.

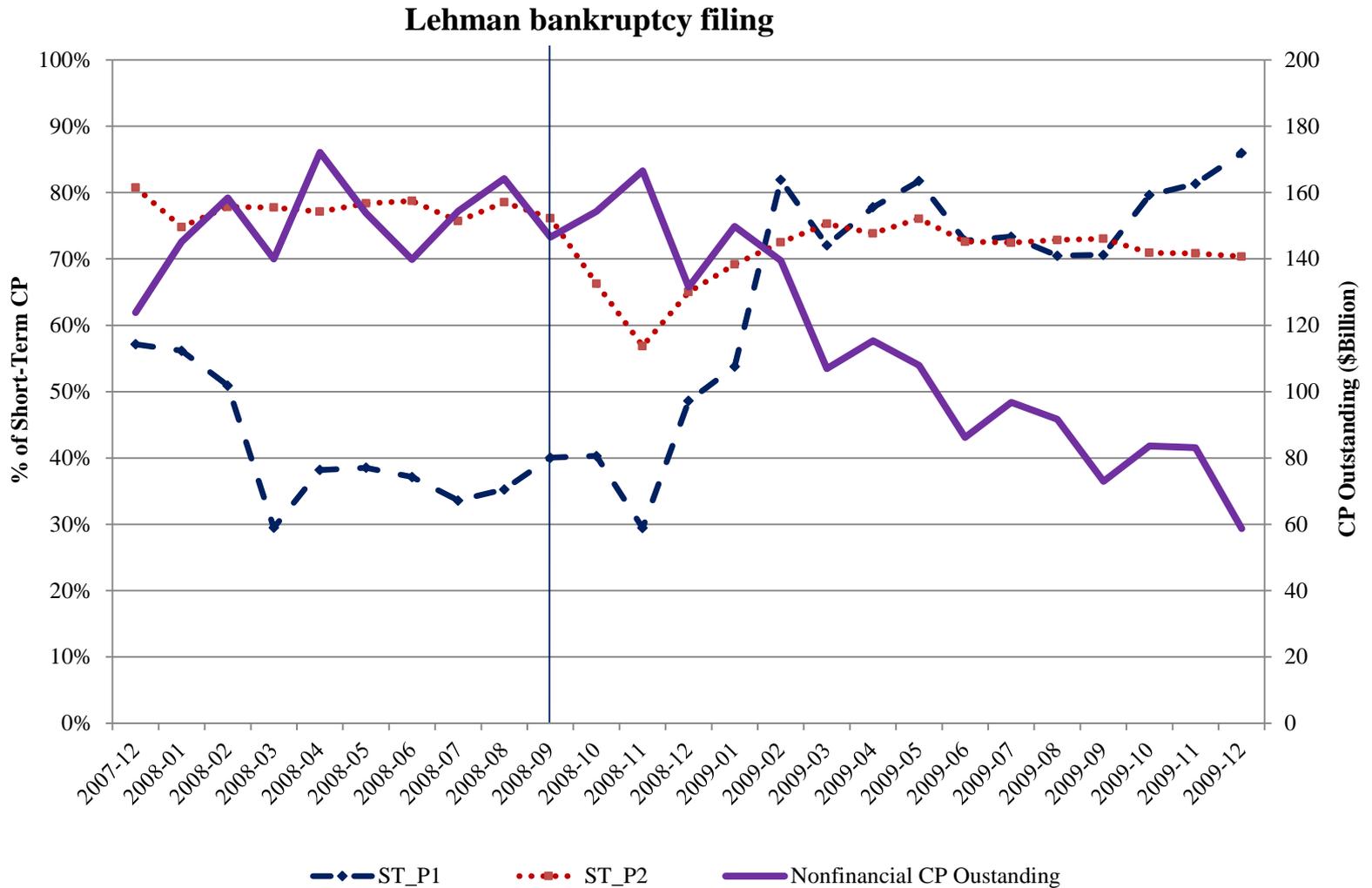
Acquisition Bridge Financing

- Quick refinancing of CP in bond market supports transaction cost hypothesis.
 - CP is used because it can be immediately accessed at low transaction costs.
 - Using bonds takes longer.
 - If acquisition does not close, bonds lock in unnecessary financing costs for the long-term. Costly due to waiting periods and premia in call provisions.
 - CP instead can be repaid quickly if acquisition fails.
 - In general, quick refinancing difficult to reconcile with asymm. info. and agency hypotheses.

Bond Underwriting Spreads (T. IX)

	CP and Control Firms	CP Firms Only	CP Firms Only
CP Firm Dummy	-0.073** (-1.99)		
CP Access Dummy		-0.11*** (-4.08)	-0.13*** (-2.87)
Rule 144a	-0.28*** (-2.98)	-0.11 (-1.38)	-0.35*** (-3.11)
Log of ME	-0.079*** (-6.86)	-0.064*** (-6.58)	-0.069** (-2.35)
Offering Proceeds	0.037** (2.49)	0.023 (1.56)	0.011 (0.53)
Shelf Registration	-0.15*** (-3.57)	-0.089** (-2.02)	-0.096 (-1.47)
Other Control Var.	Yes	Yes	Yes
Ratings Dummies	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Firm Fixed Effects	No	No	Yes
R-squared	0.426	0.443	0.402

CP and Financial Crisis (Figure 2)



Financial Crisis (Table X)

	Tier-1 CP Issuers Mean	Tier-2 CP Issuers Mean	Non-CP Firms Mean
Changes in CP/Assets from 2007 to 2008	0.48%	-0.94%**	
Changes in CP/Assets from 2008 to 2009	-2.84%***	-0.32%	
Changes in Bond Issuance/Assets from 3Q2008 to 4Q2008	0.23%	-0.56%	-0.07%
Changes in Bond Issuance/Assets from 3Q2008 to 1Q2009	1.59%***	0.05%	0.18%

Conclusion

- Analyze why firms use short-term, non-intermediated debt by studying CP market.
- Novel and comprehensive data set of U.S. nonfinancial CP issuers.
- Firms use CP as start-up financing for capital expenditures and acquisitions.
- CP reduces transaction costs associated with raising capital for new investment.

Conclusion

- Little support for asymmetric information and agency hypotheses.
- Main disadvantage of CP: rollover risk.
- Firms limit rollover risk by using CP as bridge financing and refinancing CP in bond market.
- For firms with low rollover risk, CP is a cheaper alternative to credit lines.