

Internet Appendix for

Covenants, Creditors' Simultaneous Equity Holdings, and Firm Investment Policies

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In this internet appendix, we present the robustness tests of the effect of dual ownership on the incidence of using the capital expenditure (CAPEX) restriction covenant in loan contracts and on the likelihood of receiving a waiver following financial covenant violations, respectively. Specifically, we examine the sensitivity of our results to using an alternative measure of dual ownership. We also conduct instrumental variable (IV) estimation to mitigate the endogeneity concern.

I. Dual ownership and the use of the CAPEX restriction covenant: Results from using a relative equity-to-debt ratio as an alternative dual ownership proxy

Our analysis in the paper is based on measuring dual ownership as a dummy variable or lenders' percentage of equity ownership in the borrower. In this section, we present results from using the relative ratio of equity exposure of a dual holder to its debt exposure as an alternative proxy. It is worth noting that the information on each lender's loan amount extended to a borrower is not readily available and sometimes unreliable even when it is available in DealScan. For example, only 2,397 facilities (about 40% of the regression sample) have some non-missing loan share information for lenders in the facility (for the rest of the loan facilities, individual lender's loan amount information is completely missing). In addition, only 1,424 out of the 2,397 loan facilities have a total share of 100%, indicating the existence of missing values or data errors on loan share information. A second measurement issue is that the calculation of dualholders' equity-to-debt ratio is also confounded by the amount of revolver loans that is not yet drawn down. Because of these issues, we do not use a relative equity-to-debt ratio as our main proxy.

Bearing in mind the two data issues and caveats we discuss above, we nevertheless construct an arguably noisy proxy of the relative equity-to-debt ratio to

examine the tenor of our results. Specifically, for each loan facility, we compute the relative equity-to-debt ratio as total equity value/total debt value for the dual holders that have non-missing equity and loan share information. Note that by construction, the relative equity-to-debt ratio is computed if there is at least a dual holder in the facility with non-missing information on equity and debt value. Admittedly, this ratio may not be representative of the equity-to-debt ratio for all the dual holders in a loan facility when some dual holders have missing values on their loan shares. Even with this loose computation requirement, the sample size still drops by about 23%. The average equity-to-debt ratio in our sample is about 24%.

The results are reported in Table A1. We find that the result on the negative relation between dual ownership and the chance of having a CAPEX restriction covenant is robust to the use of the (noisy) relative equity-to-debt ratio. This suggests that the binary and continuous dual ownership measures that we use as the main proxies have adequately captured the incentives of dual holders.

II. Dual ownership and the use of the CAPEX restriction covenant: Instrumental variable estimation

In the paper, we have presented cross-sectional results and difference-in-differences analyses exploiting the initiation of dual ownership to mitigate the concern over the endogeneity of dual ownership. As an additional attempt to address the endogeneity concern, we conduct an instrumental variable (IV) estimation to deal with the possibility that there are omitted time-varying factors that are correlated with both dual ownership and CAPEX restrictions. While good IVs are difficult to obtain, the literature provides some reasonable candidates. Following Jiang, Li, and Shao (2010), the first IV is a variable measuring the borrower's stock liquidity. The intuition is that the incidence of institutional equity ownership crucially depends on the stock liquidity of the portfolio companies. However, stock liquidity is unlikely to directly affect the probability of having a CAPEX restriction covenant in the borrower beyond the firm characteristics (including proxies for information asymmetry such as firm size, tangibility, cash flow risk, and whether the borrower is a constituent firm of the S&P 500 stock index) that we

control for in the models. The illiquidity measure we use is defined as the average ratio of the daily absolute return to the trading volume over the twelve months prior to the loan origination, requiring at least 200 trading days in the twelve months (Amihud (2002)).

The second IV is the (logged) number of publicly listed lenders participating in a loan facility following Ferreira and Matos (2012). Constraints on equity holdings in private lending institutions are more common, and listed lenders are more likely to have affiliates (e.g., an asset management division) that facilitate the formation of dual ownership. Therefore, the number of publicly listed lenders in a loan facility is likely to be correlated with creditors' equity ownership, but *a priori*, it is not expected to be directly related to the chance of having a CAPEX restriction.

Choi and Sias (2009) report that institutions tend to herd into the same industries in investment, and thus institutional ownership is expected to display some industry patterns. We use the mean incidence of dual holder presence (the mean share ownership held by lenders) in each industry-year as the third IV. The industry-level average institutional ownership is unlikely to affect the CAPEX restriction at the individual firm level especially when industry and time fixed effects, and credit risk measures of individual borrowers are controlled for.

The results from the two-stage regressions are reported in Table A2. We obtain the fitted value of dual holder indicator (share ownership held by dual holders) from the first-stage Probit (Tobit) regression reported in Column 1 (2). The first-stage results confirm that stock illiquidity is inversely related to both the presence and the extent of dual ownership, whereas the number of lenders that are publicly listed and the industry average dual ownership (both the incidence and extent) are positively related to the two dual ownership variables. Moreover, F-tests of excluded IVs support the relevance of the instruments, and the Hansen's over-identification tests show that the orthogonality conditions cannot be rejected at any conventional level of significance. In the second-stage regressions shown in Columns 3-4, the coefficients on both instrumented dual ownership measures are still significantly negative, consistent with our baseline results.¹

¹ The first-stage regression also includes loan characteristics (e.g., loan size, performance pricing, loan maturity) as control variables. While this is consistent with the recent loan literature, we note that loan

III. Dual ownership and waiver decisions in the event of covenant violations: Robustness checks

In the paper, we show that firms with dual holders are more likely to be granted an unconditional waiver following a technical default. The observed relation between dual ownership and creditors' waiver decisions, however, could be due to the existence of omitted variables (for example, firm quality not captured by conventional firm characteristics) that are correlated with both dual ownership and lenders' waiver decisions. To mitigate this concern, we instrument the dual ownership variables with the same IVs as in Section II and present the second-stage results of IV estimation in Columns 1-2 of Table A3. While the sample size is slightly reduced due to missing values on the IVs, inference on the two measures of dual ownership is qualitatively unchanged. In Column 3, we further experiment with measuring dual ownership as an overall equity-to-debt ratio for all dual holders in the firm to directly capture the equity incentives vis-a-vis debt incentives. The equity-to-debt ratio is loaded positively and significantly, suggesting waiver is more likely when dual holders' equity incentives increase, consistent with our argument that lenders' equity ownership reduces the incentive conflicts between debtholders and shareholders.

References

- Amihud, Y. "Illiquidity and Stock Returns: Cross-Section and Time-Series Effects." *Journal of Financial Markets*, 5 (2002), 31-56.
- Choi, N., and R. Sias. "Institutional Industry Herding." *Journal of Financial Economics*, 94 (2009), 469-491.
- Ferreira, M., and P. Matos. "Universal Banks and Corporate Control: Evidence from the Global Syndicated Loan Market." *Review of Financial Studies*, 25 (2012), 2703-2744.

characteristics may not be ideal control variables given that they might be jointly determined. In unreported results, we exclude these loan-level controls and find that our results on dual ownership in the IV tests and in the baseline models remain qualitatively unchanged. Our inference is also similar if we control for syndicate size in the IV estimations.

Jiang, W., K. Li, and P. Shao. "When Shareholders Are Creditors: Effects of the Simultaneous Holding of Equity and Debt by Non-Commercial Banking Institutions." *Review of Financial Studies*, 23 (2010), 3595-3637.

Table A1. Dual Owners' Equity-to-debt Ratio and Capital Expenditure Restrictions

This table shows the results from Probit models regressing the incidence of CAPEX restrictions on the relative ratio of dual owners' equity position to debt exposure. Firm-level control variables include Ln(cash flow volatility), Ln(assets), leverage, Tobin's Q, profitability, tangibility, Z-score, and S&P 500 index inclusion (1/0). Loan controls include logged loan size, logged loan maturity, and performance pricing dummy (1/0). Macro controls include credit and term spreads. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Y = CAPEX restriction (1/0)	(1)	(2)
Equity-to-debt ratio	-0.134** [-1.965]	-0.120* [-1.852]
Firm characteristics	Y	Y
Loan controls	Y	Y
Macro controls	Y	Y
Credit rating dummies	Y	Y
Industry & Year-quarter effects	Y	Y
Loan type & purpose dummies		Y
Pseudo R ²	0.516	0.542
N	4597	4597

**Table A2. The Effect of Dual Ownership on the Incidence of CAPEX Restrictions:
Instrumental Variable Estimation**

This table reports Probit models based on the instrumental variable (IV) estimation with the borrower's stock illiquidity, the natural logarithm of one plus the number of publicly listed lending banks in the loan facility, and the industry-year average incidence of dual holder presence (or the industry-year average extent of equity ownership) as the excluded instruments, and the control variables in the CAPEX restriction model as included instruments. The stock illiquidity is defined as the average of the daily absolute return to trading volume ratio over the twelve months prior to loan origination, requiring that the data are non-missing for at least 200 trading days in the twelve months (Amihud (2002)). 1st-stage F-test is the test of excluded IV in the 1st-stage regression. The Hansen over-identification test is the test of all instruments for overidentifying restrictions. Firm-level control variables include Ln(cash flow volatility), Ln(assets), leverage, Tobin's Q, profitability, tangibility, Z-score, and S&P 500 index inclusion (1/0). Loan controls include logged loan size, logged loan maturity, and performance pricing dummy (1/0). Macro controls include credit and term spreads. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Y =	Dual holder (1/0)	Share ownership	CAPEX restriction (1/0)	
	(1) 1 st -stage	(2) 1 st -stage	(3) 2 nd - stage	(4) 2 nd - stage
Illiquidity	-0.165* [-1.939]	-0.055*** [-3.818]		
Number of publicly listed lenders (logged)	0.965*** [17.381]	0.507*** [23.102]		
Average incidence of dual holder presence	3.262*** [18.936]			
Average share ownership held by lenders		0.683*** [18.230]		
Fitted dual holder			-0.288* [-1.934]	
Fitted share ownership				-0.371** [-2.263]
Firm characteristics	Y	Y	Y	Y
Loan controls	Y	Y	Y	Y
Macro controls	Y	Y	Y	Y
Credit rating dummies	Y	Y	Y	Y
Loan type & purpose dummies	Y	Y	Y	Y
Industry & Year-quarter effects	Y	Y	Y	Y
1 st -stage Pseudo R ²	0.756	0.592		
F-test of excluded IV (p-value)	0.000	0.000		
Hansen test (p-value)	0.738	0.848		
2 nd -stage Pseudo R ²			0.535	0.541
N	5636	5636	5636	5636

Table A3. Dual Ownership and Creditors' Waiver Decisions in the Event of Covenant Violations: Robustness Checks

This table shows the results from Probit models regressing the incidence of creditors' waiver decisions following a financial covenant violation on the dual ownership measures. Unconditional waiver (1/0) takes the value of one if the waiver is granted unconditionally after a covenant violation and zero if no waiver is granted or a conditional waiver is granted. A conditional waiver is that creditors demand some conditions (i.e., a reduction in loan size, an increase in interest rate spread, a decrease in maturity, and/or an addition of collateral) in exchange for a waiver of covenant violations. Firm-level control variables include Tobin's Q, cash/assets, ROA, leverage, and S&P 500 index inclusion (1/0). Columns 1-2 report the second-stage results from the instrumental variable estimation with the borrower's stock illiquidity, natural logarithm of one plus the number of publicly listed lending banks in the loan facility, and the industry-year average incidence of dual holder presence (or the industry-year average extent of equity ownership) as the excluded instruments. The equity-to-debt ratio in Column 3 is the ratio of total equity value to total debt value for dual holders that have non-missing equity and loan share information. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). The estimates of the constant, credit rating dummies, industry and year-quarter indicator variables are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Y = Unconditional waiver (1/0)	(1)	(2)	(3)
Fitted dual holder	0.561*** [2.981]		
Fitted share ownership		0.446** [2.500]	
Equity-to-debt ratio			0.642*** [2.797]
Firm characteristics	Y	Y	Y
Credit rating dummies	Y	Y	Y
Industry effects	Y	Y	Y
Year-quarter effects	Y	Y	Y
Pseudo R ²	0.281	0.277	0.226
N	1101	1101	1163