

Recent Evidence on Japanese Firms' Non-positive Net Debt Strategy

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Abstract

The term “non-positive net debt” refers to firms’ status whereby they hold more cash (and cash equivalents) than outstanding debt, which characterized Japanese firms in the 2000s. This study investigates the characteristics of firms with non-positive net debt using recent data from manufacturing industry firms between 2000 and 2022. Consistent with the literature, Japanese firms continue to hold non-positive net debt, and firms with fewer growth opportunities are likelier to have non-positive net debt. The literature reports a negative effect of firm size on non-positive net debt, but this study provides opposing results. Moreover, the non-positive net debt strategy of manufacturing industry firms in Japan is consistent, even in difficult times such as the COVID-19 period.

Keywords: financing strategy, non-positive net debt, growth opportunity, manufacturing industry, Japanese firm

1. Introduction

Firms holding a much lower level of debt than what trade-off theory predicts have long been discussed in the literature on capital structure. While the mainstream literature focuses more on no debt (zero leverage) (See Strebuleav and Yang, 2013 for an example), Japanese firms are known for having “non-positive net debt” rather than zero leverage, which results from holding equal or more cash holdings than debt. Firms holding low debt or non-positive net debt could be (1) saving debt capacity for future investment or difficult times so that they can practice unused debt capacity when necessary (Denis, 2011) or (2) having insufficient external financing access, so that they cannot raise their debt level even if they want to (Bessler et al., 2013). In the literature

on Japanese firms, however, another possible reason is that the lack of growth (investment) opportunities causes cash holdings to pile up so much that they exceed outstanding debt, resulting in non-positive net debt or virtually zero leverage (Cui, 2020).

This study follows Strebuleav and Yang (2013) and Cui (2020) to investigate the reasons for Japanese firms' non-positive net debt strategies, using recent data from manufacturing industry firms between 2000 and 2022. Overall, the results align with previous literature on Japanese firms, which indicates that a lack of growth opportunities is related to the status of having non-positive net debt. However, some results differ in terms of firm size. The results of this study indicate that large firms are likelier to have non-positive net debt, whereas, the previous literature indicated that small firms are likelier to do so. Since Cui (2020) used data until 2015, this study provides evidence based on more recent data, especially for the COVID-19 period. Surprisingly, the number of firms with non-positive net debt did not decrease and even increased in 2020 and 2021. Finally, although the observation number is limited, there is suggesting the reason firms quit non-positive net debt is adequate growth opportunity, which also aligns with previous literature.

2. Methodology and Results

This study investigates the characteristics of firms with non-positive net debt (NPND) through empirical analysis, following Strebuleav and Yang (2013) and Cui (2020). The data set contains firms listed in the manufacturing industry from the Nikkei NEEDS Financial Quest from 2000 to 2022.

The main dependent variable in the empirical analysis is the NPND dummy variable, which equals one if a firm holds as many cash holdings as debt or holds more cash holdings than debt, that is, non-positive net debt. Net debt is calculated as the sum of long- and short-term debt minus cash and cash equivalents. The enter dummy takes the value of 1 if a firm becomes an NPND firm in the corresponding year and 0 otherwise. The exit dummy takes the value of one if a firm abandons its NPND strategy in the corresponding year and zero otherwise.

Figure 1 shows the number of NPND firms in each year of the sample period. Generally, the number of NPND firms in the manufacturing industry gradually increased throughout the sample period and decreased in 2009 (after the 2008 global financial crisis) and 2019.

The COVID-19 period is considered to have been difficult for firms regarding financing and funds through external access. In such conditions, firms are likelier to rely on cash holdings they piled up. As net debt is calculated as debt minus cash, consuming cash holdings results in higher net debt; therefore, the number of firms with non-positive net debt should naturally decrease during the COVID-19 period. However, as shown in Figure 1, the overall number of NPND firms continued to increase in the first and second years after the COVID-19 outbreak.

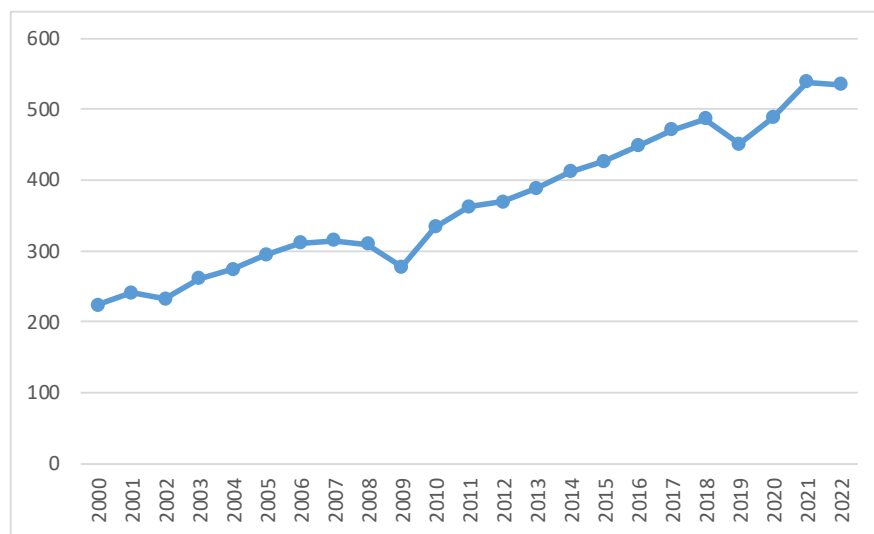


Figure 1. *Number of NPND firms in the manufacturing industry*

The main independent variables are M/B (market to book ratio), size (natural log of book assets), tangibility (tangible assets scaled by book assets), profitability (profit scaled by book assets), dividend (dividend scaled by book assets), cash flow volatility (standard deviation of cash flow in corresponding industry and fiscal year), capital expenditure (change of fixed assets scaled by book assets), lagged NPND (the value of NPND in the last year), R&D (research and development scaled by total sales). Table 1 presents the summary statistics of all the variables.

There are also variables from previous research that were not included in the regressions in this study. In Table 1, the number of years represents the number of years each firm existed in the sample period, and the natural log of this number of years is usually included as the age of the firm in the empirical regressions. However, as 88.48% of the observations of the whole sample had 23 years of existence, the lack of variance caused the age variable to be omitted automatically.

For the same reason, the dividend payment dummy variable, which takes the value of 1 if a firm pays dividends in the corresponding year and 0 otherwise, is also omitted.

Table 1. *Summary Statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
NPND	30,649	0.276	0.447	0.000	1.000
Enter	30,649	0.053	0.224	0.000	1.000
Exit	30,649	0.041	0.198	0.000	1.000
M/B	29,300	1.184	3.807	0.052	622.241
Size	30,515	10.736	1.684	3.689	18.030
Tangibility	30,511	0.436	0.143	0.000	0.970
Profitability	30,355	0.246	0.161	-0.848	3.189
Dividend	26,125	0.010	0.009	0.000	0.280
Cash flow volatility	30,649	0.086	0.012	0.065	0.108
Capital expenditure	28,970	0.008	0.066	-2.444	0.765
Lagged NPND	29,149	0.271	0.445	0.000	1.000
R&D	230	0.004	0.008	0.000	0.093
Number of years	30,649	22.189	2.966	1.000	23.000
Dividend payment	30,649	1.000	0.006	0.000	1.000

Note: This table presents summary statistics of the sample data.

Table 2 presents the baseline regression results. Columns (1), (2), and (3) show the results with all independent variables included using OLS, random effects model, and GMM, respectively. In Columns (4)–(6), Lagged NPND is removed in consideration of endogeneity, and R&D is removed to avoid observation number limitations and to provide evidence-based on the border observation base. Although the inclusion of R&D results in a limited number of observations, it increases the explanatory power of the model. As R&D is also included in the existing literature, the results of the models that include R&D are shown in Tables 2 (and 3).

Table 2. *Results of Baseline Analyses*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	RE	GMM	OLS	RE	GMM
M/B	-0.067*	-0.067*	-0.105***	-0.022***	-0.003	-0.009***
	(0.040)	(0.040)	(0.037)	(0.004)	(0.004)	(0.002)
Size	0.017	0.017	0.028*	0.012***	0.035***	0.013***
	(0.017)	(0.017)	(0.014)	(0.002)	(0.005)	(0.001)
Tangibility	-0.204	-0.204	-0.415**	-0.610***	-0.831***	-0.635***
	(0.233)	(0.233)	(0.204)	(0.023)	(0.036)	(0.012)
Profitability	0.010	0.010	0.141	0.138***	0.162***	0.155***
	(0.395)	(0.395)	(0.357)	(0.022)	(0.038)	(0.012)
Dividend	11.600*	11.600*	16.183***	4.439***	1.788***	3.048***
	(6.768)	(6.768)	(6.199)	(0.373)	(0.414)	(0.223)
Cash flow volatility	2.316	2.316	2.252	0.544**	0.648***	-0.010
	(2.192)	(2.192)	(2.077)	(0.260)	(0.208)	(0.156)
Capital expenditure	-0.119	-0.119	0.048	0.223***	0.151***	0.097***
	(0.321)	(0.321)	(0.307)	(0.055)	(0.045)	(0.032)
Lagged NPND	0.570***	0.570***	0.322***			
	(0.078)	(0.078)	(0.072)			
R&D	0.585	0.585	2.031			
	(4.975)	(4.975)	(4.498)			
Observations	119	119	119	24,716	24,716	24,716
R-squared	0.438			0.045		

Note: This table presents the results of univariate and baseline analyses. Standard errors are indicated in parentheses. ***, ** and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively.

M/B shows negative and significant results, indicating that firms with fewer growth opportunities are likelier to have non-positive net debt. Size is significantly positive, indicating

that large firms are likelier to have non-positive net debt. This contradicts the existing literature as small firms usually face more difficulty when financing through external access and are, therefore, likelier to have lower (net) debt levels.

Table 3. *Results of Entry and Exit Analyses*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Enter			Exit		
	OLS	RE	GMM	OLS	RE	GMM
M/B	-0.007 (0.027)	-0.007 (0.027)	-0.051 (0.032)	0.116*** (0.032)	0.143*** (0.029)	0.157*** (0.029)
Size	0.003 (0.012)	0.003 (0.012)	0.007 (0.013)	-0.013 (0.014)	-0.012 (0.020)	-0.020* (0.012)
Tangibility	-0.193 (0.159)	-0.193 (0.159)	-0.155 (0.174)	-0.323* (0.188)	-0.231 (0.238)	-0.215 (0.159)
Profitability	-0.231 (0.276)	-0.231 (0.276)	-0.027 (0.313)	-0.515 (0.328)	-0.435 (0.371)	-0.542* (0.287)
Dividend	3.209 (4.615)	3.209 (4.615)	3.696 (5.307)	0.972 (5.481)	0.210 (6.432)	-0.802 (4.865)
Cash flow volatility	1.733 (1.539)	1.733 (1.539)	1.712 (1.839)	-1.609 (1.827)	-1.061 (1.760)	-1.025 (1.686)
Capital expenditure	0.081 (0.226)	0.081 (0.226)	0.183 (0.272)	0.262 (0.269)	0.248 (0.262)	0.238 (0.249)
R&D	-3.052 (3.498)	-3.052 (3.498)	-1.389 (3.983)	-5.243 (4.154)	-4.245 (5.530)	-6.015* (3.652)
Observations	119	119	119	119	119	119

Note: This table presents the results of the entry and exit analyses. Standard errors are indicated in parentheses. ***, ** and * indicate $p < 0.01$, $p < 0.05$, and $p < 0.1$, respectively.

Tangibility shows negative results because firms with more tangible assets are likelier to borrow through external access. Firms with higher profitability are more capable of accumulating cash holdings and, therefore, have less net debt. Similar results can also be seen for dividends since firms paying more dividends are more flexible in cash holdings. Cash flow volatility represents the risk of a firm's cash flows, and higher cash flow volatility indicates a riskier cash flow. A firm with riskier cash flows faces more difficulty using external financing, making it likelier to have non-positive net debt. Lagged NPND is significantly positive and contributes remarkably to the explanatory power of the model, indicating that NPND is strongly continuous. This result is consistent with the literature on zero leverage and non-positive net debt.

Table 3 provides the regression results of the enter/exit analyses to investigate the factors driving firms to adopt or abandon NPND. The dependent variables are the enter dummy in Columns (1)–(3) and the exit dummy in Columns (4)–(6). Although M/B showed insignificant results in the entry regression, the results in the exit regression were significantly positive. This means that firms with more growth opportunities are likelier to quit a non-positive net debt status, which is again in line with previous literature.

Noticeably, although these results provide recent evidence of Japanese firms on the non-positive net debt topic, the sample is limited to the manufacturing industry. A full sample including all industries should be able to provide more integrated evidence, especially in models with R&D included, as R&D is an essential factor in accumulating cash holdings, but this is very limited in the observation number in this study.

3. Conclusion

This study provides recent empirical evidence on the characteristics of firms with non-positive net debt. Using data from Japanese manufacturing industry firms between 2000 and 2022, the analysis results show that the non-positive net debt strategy of Japanese firms is continuous: firms with fewer growth opportunities are likelier to have non-positive net debt, and firms with more growth opportunities are likelier to abandon such a strategy. While these results align with the previous literature, the empirical results of this study show that large firms are likelier to have non-positive net debt, whereas the previous literature stated small firms are likelier to do so.

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