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Financial Constraints, Corporate Investment and Future Profitability

by

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Abstract

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This paper provides evidence consistent with the idea that the implications of investment on future profitability differ for financially constrained and financially flexible firms. In particular, this study finds that the investment of financially constrained firms is associated with higher persistence in profitability than the investment of flexible firms. This paper also finds that this result is related to differences in future write-downs and goodwill impairments, suggesting that the difference in persistence in profitability between both groups of firms is associated with differences in investment quality. Finally, it shows that investors do not fully understand the role of financial constraints on the relation between investment and future profitability, since the investment of financially constrained firms is associated with higher one-year ahead abnormal returns than the investment of flexible firms. Moreover, for financially constrained firms, large levels of investment are not associated with negative abnormal returns, suggesting that the negative relation between corporate investment and future abnormal stock returns documented in previous research is not general to the entire cross-section of firms.

Dedication

I dedicate this dissertation to my mother, María Isabel, for her love, understanding, dedication and support over the years. To my love Paulina who has shared her life and love with me. To my father and sisters who have been a solid pillar in my life.

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Chapter 1

Introduction

In a frictionless financial market a firm's investment should only depend on the profitability of investment opportunities. In this context, real firm decisions motivated by the maximization of shareholders' claims, are independent of financial factors such as internal liquidity, debt leverage, or dividend payments (Modigliani and Miller 1958).

However, the assumptions of a frictionless financial market are very strong. In practice firm decision makers have significantly better information than outside investors about most aspects of the firm's investment and production (Fazzari et al. 1988, Hubbard 1998). With imperfect information about the quality or riskiness of the borrowers' investment projects, adverse selection leads to a gap between the cost of external financing in an uninformed capital market and internally generated funds (Hubbard 1998, Jaffee and Russell 1976, Stiglitz and Weiss 1981 and Myers and Majluf 1984).

For firms severely affected by this asymmetric information problem, the more limited and costly access to external financing leads to underinvestment when the firm does not have enough internal resources to finance all its positive NPV projects. Consistently, a financially constrained firm is defined as one that critically depends on internal funds to finance all its profitable investment opportunities. Therefore, a financially constrained firm is, all else equal, a firm that does not have enough internal resources to finance all its profitable projects, and faces a high cost of capital when it demands external financing.

Prior research in economics has extensively documented the role of financial constraints on the magnitude of investment and other economic variables[1]. However, there is little evidence on the implications of investment on future earnings performance and stock returns for firms that a priori face different levels of financial constraints. This paper extends the literature by analyzing three main research questions. First, do the implications of investment on future profitability differ for financially constrained and financially flexible firms? Second, are these potential differences in future profitability explained by differences in the quality of investment projects? Third, do investors understand that the implications of investment on future earnings performance may be different for financially constrained and flexible firms?

These questions are motivated by the vast literature that has found that activities associated with the expansion of a firm's scale and its assets tend to be followed by periods of abnormally low performance and long term stock return, while activities associated with cash distribution and asset contraction are associated with positive firm performance and returns. [2] The crucial tension in this paper arises from the fact that for financially constrained firms, the retention of cash and reinvestment of earnings are essential activities to avoid losing positive NPV projects. In contrast to other firms, for financially constrained firms, the use of internal funds to pay dividends would not be consistent with value maximization. This is because it would be more efficient for the firm to retain the cash flow and use the internal funds in new profitable projects than to distribute the cash and finance the deficit raising external financing.[3] Consistent with this conjecture, this paper hypothesizes that the implications of investment on future profitability will be different for financially constrained and financially flexible firms.

In addition to this argument, a priori, there are other reasons to expect differences in investment implications on earnings for financially constrained and flexible firms.

First, the investment made by financially constrained firms may be more strongly associated with positive NPV projects than the investment made by financially flexible firms. The reasoning is that since financially constrained firms do not have enough internal resources to finance all their investment projects, they will necessarily have to raise equity or high yield debt, facing capital market scrutiny.

[1] Hubbard (1998) and Stein (2003) are two excellent reviews of this literature.

[2] There have been a large number of studies reporting a negative relation between different measures of corporate investment and future performance. Richardson et al. 2010 conducts an excellent review of these findings.

[3] Note that this does not mean that financial constrained firms will not raise external financing. Financial constrained firms need external financing to finance all their projects. However, since the gap between internal and external financing is large, it would be more efficient for them to retain cash (cutting dividends) and financing the deficit with external financing.

This market discipline would encourage managers to undertake positive NPV projects and discourage unprofitable projects.

Second, the investment made by financially constrained firms may be less associated with value decreasing decisions (e.g. empire building activities) than the investment made by flexible firms.[4] The reasoning is that the scarcity of financial resources within the firm restricts the flexibility and discretion of managers to invest in projects that are beneficial from a management perspective but costly from a shareholder perspective. This argument is consistent with prior research documenting that low financial flexibility reduces investment discretion and imposes more discipline on manager behavior, discouraging empire building incentives (Harris and Raviv 1990 and 1991, Titman et al. 2004).

Third, since constrained firms face difficulties financing positive NPV projects when they do not have enough internal resources, the announcement of investment is a strong positive signal about the future profitability of projects. Since the internal funds are scarce for financially constrained firms, they will only finance new projects when they perceive that the project is really profitable.

To address the first research question, *do the implications of investment on future profitability differ for financially constrained and financially flexible firms?* this paper analyzes the implications of investment on earnings persistence for constrained and flexible firms. If the investment of financially constrained firms is more related to value increasing projects (less associated with negative NPV projects) than the investment of financially flexible firms, then the investment of financially constrained firms will be associated with higher persistence in profitability than the investment of flexible firms.

To address the second research question, *are the potential differences in future profitability explained by differences in the quality of investment projects?* this paper proposes to evaluate the ex-post quality of investment, by analyzing the magnitude of write-downs and goodwill impairments. Firms recognize write-downs and goodwill impairments in their balance sheets when there is a clear motive that suggests that the carrying value of the asset can no longer be justified as fair value, and the likelihood of receiving the cash flows associated with the asset is questionable at best. In general, good investment decisions should be less associated with future write-downs than bad investment decisions.

To address the third research question, *do investors understand that the implications of investment on future earnings performance may be different for financially constrained and flexible firms?* this study analyses the implications of investment on

[4] According to Richardson 2006, overinvestment is a common problem for publicly traded US firms.

future abnormal returns. If investors do not understand the implications of investment on future firm performance for financially constrained and flexible firms, we should observe that cross-sectional differences in the degree of financial constraints explain the implications of investment on future returns.

The data used in this paper come from the Compustat and CRSP databases for the period 1962 to 2011, which includes 95,245 firm-year observations after data requirements.

To measure firm financial constraints at the beginning of the period, this paper uses the proxy for financial constraints proposed by Whited and Wu (2006). These authors claim that unlike the Kaplan and Zingales (1997) index, theirs is a robust measure of financial constraints, since it is consistent with firm characteristics associated with external finance constraints. Consistently with Whited and Wu (2006), this study also finds that their measure is more positively correlated with other ex-ante proxies for financial constraints (such as bond rating, size, and dividend payout ratio) than KZ index in my sample.

To measure the magnitude of investment, this paper uses the change in net operating assets plus the change in financial assets. This variable called "reinvestment of earnings" by Dechow et al. 2008 has the advantage of being a more comprehensive measure of investment, since it includes not only the increase in net operating assets but also the investment in financial assets.

To provide answers to the research questions, this study present results of regressions for earnings persistence, write-downs, and stock returns, controlling for firm and year effects.

The paper provides several interesting results. First, the investment of financially constrained firms is associated with higher persistence in profitability than the investment of flexible firms. Second, the investment of financially constrained firms is associated with lower future write-downs and goodwill impairments than the investment of flexible firms. This suggests that financially constrained firms invest in projects of higher quality than flexible firms. Third, the investment of financially constrained firms is not associated with negative one-year ahead abnormal returns. In contrast, the investment of financially flexible firms is associated with negative one-year ahead abnormal returns.

This study contributes in three distinct areas of the literature. First, it extends the accounting literature by showing that differences in the degree of financial constraints can predict cross-sectional variation in both future earnings performance, and the incidence and magnitude of future write-downs. Taken together, these findings are consistent with the idea that the investment of financially constrained

firms is more strongly associated with positive NPV projects than the investment of flexible firms.

Second, this paper extends the literature on the role of financial constraints on firm value, by studying the implications of the interaction between financial constraints and investment on future profitability and future returns. Faulkender and Wang (2006) and Pinkowitz and Williamson (2007) have documented that cash holdings are more valuable for constrained firms than for flexible firms. Consistent with this finding, the results of Denis and Sibilkov (2010) suggest that the association between investment and contemporaneous returns is significantly stronger for constrained firms than for flexible firms. However, none of these studies analyze whether the implications of investment on future profitability and future stock returns may differ for financially constrained and financially flexible firms. The results in this paper shows that the association between investment and future returns is negative for financially flexible firms, while it is not significantly negative for financially constrained firms.

Third, this dissertation extends the literature on mispricing of corporate investment (Sloan 1996, Fairfield et al. 2003a, Thomas and Zhang 2002, Titman et al. 2004, Richardson et al. 2005 and 2006, Dechow et al. 2008, and Cooper et al. 2008) by showing that the negative relation between corporate investment and future abnormal returns is not general to the entire cross section of firms. In fact, for financially constrained firms, large levels of investment are not associated with negative future abnormal returns.

The dissertation proceeds as follows. Chapter 2 presents the theoretical background. Chapter 3 formulates and explains the hypotheses. Chapter 4 describes the sample and research design. The results are discussed in chapter 5. Chapter 6 presents additional analysis and robustness tests. Chapter 7 presents the conclusions.

Chapter 2

Theoretical Background

In a frictionless financial market a firm's investment should only depend on the profitability of investment opportunities. In this context, real firm decisions motivated by the maximization of shareholders' claims, are independent of financial factors such as internal liquidity, debt leverage, or dividend payments (Modigliani and Miller 1958).

To see this more clearly, Figure 1 Case 1 depicts the demand for investment by a firm (D(Q)), and the supply of funds to the firm S.[5] The demand for investment depends on the profitability of investment opportunities Q. In a frictionless market, the supply of funds is horizontal at the level r (the market real interest rate adjusted by risk). Under these conditions the optimal level of investment is given by K*.

However, the assumptions of a frictionless financial market are very strong. In practice, firm decision makers have significantly better information than outside investors about most aspects of the firm's investment and production (Fazzari et al. 1988, Hubbard 1998). With imperfect information about the quality or riskiness of the borrowers' investment projects, adverse selection leads to a gap between the cost of external financing in an uninformed capital market and internally generated funds (Hubbard 1998, Jaffee and Russell 1976, Stiglitz and Weiss 1981 and Myers and Majluf 1984).

For firms that are not affected by this information problem, investment decisions are independent from internal funds. This kind of firms can raise external funds at a cost equal to r and finance their optimal level of investment without facing restrictions.

[5] This paper follows the graphical analysis proposed by Hubbard 1998 in this section.

For this group of firms the level of investment only depends on the profitability of investment (Figure 1 case 1). These are financially flexible firms.

In contrast, for firms severely affected by this adverse selection problem, investment and financing decisions are not independent. This group of firms can only reach the optimal level of investment (K*) if they have enough internal resources. If they do not have sufficient internal funds, the level of investment will be suboptimal and will depend on the level of internal resources within the firm and the adverse selection premium demanded by investors. These are financially constrained firms.

In Figure 1 Case 1, this situation is represented by a supply of funds having two phases. The first phase is a horizontal supply of funds at r, up to a level of internal funds equal to W_0. From that point, the slope of the supply of funds is positive, since investors demand a premium for the asymmetric information that they face. This gap between the cost of internal and external funds leads to underinvestment for the firm. In Figure 1 Case 1, the level of investment is K_0, which is lower than the optimal level under no asymmetric information (K*).

An important aspect is that for financially constrained firms, cash retention and reinvestment of earnings are essential activities to avoid losing positive NPV projects. This is because any increase in internal funds allows constrained firms to increase their level of investment at low financing cost. This case is represented in Figure 1 Case 2. An increase in internal funds from W_0 to W_1 expands the supply of funds through the right (depicted as $S(W_1)$), allowing firms to invest a level equal to K_1, which is larger than K_0.

However, adverse selection is not the only information problem that affects firms. Prior research has also documented that agency-related overinvestment (moral hazard) is also pervasive across firms. The agency-related overinvestment hypothesis is based on the works of Jensen (1986) and Stulz (1990) who suggest that monitoring difficulty creates the potential for management to spend internally generated cash flow on projects that are beneficial from a management perspective but costly from a shareholder perspective (empire-building incentives). Several papers have provided support to this argument. For example, Opler et al. (1999 and 2001) find evidence that companies with excess cash have higher capital expenditures, and spend more on acquisitions, even when they appear to have poor investment opportunities. Blanchard et al. (1994) finds that firms with unexpected gains from law-suits appear to engage in wasteful expenditure. In a more recent paper, Richardson (2006) provides evidence that suggests that (i) overinvestment is a common problem for publicly traded US firms; (ii) the average firm overinvests 20% of its available free cash flow.

This situation is represented in Figure 1 Case 3. Assume a manager with empire building incentives that faces a large free cash flow equal to W_1. In this case, the manager has incentives to invest up to K^{OI}, even though the amount of investment K^{OI} is inefficient (negative NPV projects). This situation is more likely to occur in a financially flexible firm than in a constrained firm. There are two main reasons for this. First, financially constrained firms have to be more careful with their internally generated funds, since the cost of wasting money is too high (lose positive NPV projects). In fact, prior empirical research suggests that low financial flexibility reduces investment discretion and imposes more discipline on manager behavior, discouraging empire building incentives (Harris and Raviv 1990 and 1991, Titman et al. 2004). Second, financially flexible firms tend to generate large amounts of internal resources, being more likely for managers to waste resources in poor projects without receiving discipline from the capital market.

Chapter 3

Hypotheses Development

Prior research has documented that, in general, activities associated with the expansion of a firm's scale and its assets tend to be followed by periods of abnormally low long-term stock returns (Richardson et al. 2010). In fact, there have been a large number of studies reporting a negative relation between different measures of corporate investment and future performance: acquisitions (Asquith 1983, Agrawal et al. 1992, and Loughran and Vijh 1997), working capital (Sloan 1996), Long term net operating assets (Fairfield et al. 2003), capital investment (Titman et al. 2004), inventories (Thomas and Zhang 2002), change in net operating assets (Richardson et al. 2005 and 2006), total asset growth (Cooper et al. 2008), reinvestment of earnings (Dechow et al. 2008), among others. On the other hand, corporate events associated with decreases in the scale of the firm and asset contraction tend to be followed by periods of abnormally high long term stock returns. Evidence consistent with this idea can be found in: Lakonishok and Vermaelen, 1990 and Ikenberry et al. 1995, for share repurchases; Afleck-Gravez and Miller, 2003, for debt prepayments; and Michaely et al., 1995 for dividends initiations.

However, a priori there are several reasons to think that the negative relation between corporate investment (including cash retention) activities and future performance documented in prior research could be less severe or nonexistent for financially constrained firms.

First, for financially constrained firms, cash retention and reinvestment of earnings are essential activities to avoid losing positive NPV projects. In contrast to other firms, for this group of firms, the use of internal funds to pay dividends, financing

new projects with expensive external funds would not be consistent with value maximization.

Second, the investment made by financially constrained firms may be more strongly associated with positive NPV projects than the investment made by financially flexible firms. The reasoning is that since financially constrained firms do not have enough internal resources to finance all their investment projects, they will necessarily have to raise equity or high yield debt, facing capital market scrutiny. This market discipline would encourage managers to undertake positive NPV projects and discourage unprofitable projects.

Third, the investment made by financially constrained firms would be less associated with value decreasing decisions (e.g. empire building incentives) than the investment made by financially flexible firms. The idea is that the scarcity of funds within the firm restricts manager's flexibility to invest in projects that are beneficial from a management perspective but costly from a shareholder perspective. This argument is consistent with prior research documenting that low financial flexibility reduces investment discretion and imposes more discipline on manager behavior, discouraging empire building incentives. Furthermore, current shareholders could have more incentives to monitor managers in financial constrained firms, reducing the incidence and magnitude of negative NPV projects. This is because the scarcity of financial resources within the firm imposes a high cost on shareholders when managers have incentives to waste internal funds in empire building activities. In flexible firms, managers with empire building incentives may finance both value increasing and value decreasing projects. In contrast, for constrained firms, the cost of undertaking negative NPV projects is much higher, since the internal funds could not be sufficient to undertake those projects that are beneficial for both managers and shareholders.

Fourth, since constrained firms face difficulties to finance positive NPV projects when they do not have enough internal resources, the announcement of investment would be a strong positive signal about the future profitability of projects, or the severity of financial constraints. Since the funds are scarce for financially constrained firms, they would only finance new projects if they perceive that the project is really profitable to take the risk, or the restrictions will be less severe in the future. However, because of the adverse selection problem and lack of ability to raise cheap external funds, the investment of a financially constrained firm may not be associated with a contemporaneous positive stock response.

If financially constrained firms are more likely to invest in positive NPV projects (and less likely to make value decreasing decisions) than financially flexible firms then:

H1: The investment of financially constrained firms is associated with higher persistence in profitability than the investment of flexible firms.

One concern is whether the potential differences in the persistence in profitability is really explained by differences in the quality of the investment projects

To address this issue, this paper studies the ex-post quality of the investment, by analyzing the incidence and magnitude of write-downs and goodwill impairments. Firms recognize write-downs and goodwill impairments in their balance sheets when there is a clear motive that suggests that the carrying value of the asset can no longer be justified as fair value, and the likelihood of receiving the cash flows associated with the asset is questionable at best. In general, good ex-ante investment decisions should be less associated with future write-downs than bad ex-ante investment decisions.

If we observed that the incidence and magnitude of future write-downs and goodwill impairments is lower for financially constrained firms, then this would be consistent with the idea that the differences in the persistence of profitability between both groups of firms is explained by differences in investment quality.

H2: The investment of financially constrained firms is associated with higher investment quality than the investment of flexible firms, which is reflected in fewer future write-downs and impairments.

Finally, do investors understand that the implications of investment on future earnings performance are different for financially constrained and flexible firms?

If markets are efficient and investors are rational we should not observe a systematic positive or negative relation between investment and future returns, since investors would anticipate the effect of the investment at the announcement. However, if investors do not understand the implications of investment on future firm performance for financially constrained and flexible firms, we should observe that cross-sectional differences in the degree of financial constraints explain the implications of investment on future returns.

Note that if market imperfections that result in financial constraints exist, then investors are less likely to understand that financially constrained firms will perform better in the future. Otherwise, investors would have been willing to lend them less expensive funds in the first place.

H3 (null hypothesis): All else equal, the stock returns associated with the investment of financially constrained firms are not different from the returns associated with the investment of financially flexible firms.

Chapter 4

Sample Formation and Variable Measurement

4.1 Sample Formation

The empirical tests employ data from two sources. Financial statement data are obtained from the Compustat annual database and stock return data are obtained from the Center for Research in Security Prices (CRSP) monthly stock returns files.

The sample covers all U.S. firms with 3 years of consecutive available data on Compustat and CRSP for the period 1962-2011.[6] Firm-year observations with insufficient data on Compustat to compute the primary financial statement variables used in the tests are excluded.[7] The sample requires non negative values for total assets and book value of equity, and non missing values for market value of equity and stock returns. All firms whose primary SIC classification is between 4900 and 4999 or between 6000 and 6999 are omitted since the model for identifying financial constrained firms (Whited and Wu 2006) is inappropriate for regulated or financial firms. Finally, to ensure sample firms have sufficient market liquidity for return tests, this study follows Beneish et al. 2001 by restricting the sample to firms with stock price of at least $5 at the beginning of the stock return measurement.[8] These criteria yield final sample size of 95,245 firm-year observations.

[6] This paper requires data for current, prior and next year data.
[7] This study requires availability of Compustat data item 1, 6, 9, 12, 32, 34 and 181 in both the current and previous year and data item 18 in the current year in order to keep a firm-year in the sample.
[8] The cutoff point of $5 is consistent with the SEC definition for "Penny Stocks". According to the SEC, "Penny stocks may trade infrequently, which means that it may be difficult to sell penny stock shares once you own them. Moreover,

4.2 Variable Measurement

To measure the degree of financial constraints that firms face, this paper uses the index proposed by Whited and Wu 2006. The authors obtain this measure from a standard intertemporal investment model augmented to account for financial frictions. Their model predicts that external finance constraints affect the intertemporal substitution of investment today for investment tomorrow via the shadow value of scarce external funds. This shadow value in turn depends on observable variables. The authors use Generalized Method of Moments (GMM) estimation to provide fitted values for the shadow value, which they use as financial constraint index. The authors start to estimate the model using the following observable variables: firm debt to assets ratio, positive dividend dummy, firm sales growth[9], size, industry sales growth, cash to assets ratio, cash flow to assets ratio, analyst following[10], and industry debt to assets ratio. After examining the difference in the minimized GMM objective functions for the most general and for subsequently more parsimonious models, the authors conclude that their final specification excludes industry debt to assets ratio, analyst following, and cash to assets ratio. Consequently, the Whited and Wu (2006) financial constraint index is computed using the following formula:

$$WW_{it} = -0.091 \cdot CF_{it} - 0.062 \cdot DIVPOS_{it} + 0.021 \cdot TLTD_{it} - 0.044 \cdot LNTA_{it} + 0.102 \cdot ISG_{it} - 0.035 \cdot SG_{it} \quad (1)$$

Where CF is the ratio of cash flow to total assets; TLTD is the ratio of the long-term debt to total assets; DIVPOS is an indicator that takes the value of one if the firm pays cash dividends; LNTA is the natural log of total assets; ISG is the firm's three-digit industry sales growth, and SG is firm sales growth.

Whited and Wu (2006) show that, in contrast with the measure proposed by Kaplan and Zingales 1997 (KZ-index), their measure does a better job in isolating firms with characteristics associated with external financial constraints.[11] Consistent with Whited and Wu (2006), untabulated results also show that their measure is more correlated with firm characteristics that a priori are associated with other ex-ante proxies of financial constraints (such as bond rating, size, and dividend payout ratio) than KZ index.

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because it may be difficult to find quotations for certain penny stocks, they may be difficult, or even impossible, to accurately price". The results are qualitatively the same if $1 or $10 is used as a cutoff point.

[9] The authors use sales growth and industry sales growth to capture the intuition that only firms with good investment opportunities are likely to want to invest enough to be constrained.

[10] The authors include analyst coverage as an indicator of asymmetric information.

[11] One of the main criticisms on KZ index is that this model would not be accurate in large samples (Whited and Wu 2006).

Table 1 provides mean values of a variety of firm characteristics for groups of firms sorted into quintiles by WW index. Prior research has associated the absence of a bond rating as a proxy for financial constraints (Whited 1992, Gilchrist and Himmelberg 1995 and Almeida, Campello and Weisbach 2004). The results are consistent with this measure: 74.5% of the least constrained firms have bond ratings, whereas only 0.9% of the most constrained firms have bond ratings. Prior research has also used the dividend payout ratio as a proxy for financial constraints (Fazzari et al. 1988). Table 1 shows that 96% of least constrained firms pay dividends, while only 15% of the most constrained firms do it. The ratio of cash to assets increases in the level of financial constraints and the ratio of long term debt to assets decreases. These results are consistent with the previously documented idea that constrained firms practice precautionary savings, building up liquid assets to invest (Almeida, Campello and Weisbach 2004, Faulkender and Wang 2006). Consistent with the findings of Whited and Wu 2006, constrained firms tend to be small and young firms with good investment opportunities. In fact, the level of Tobin's q rises with the level of financial constraints. Finally, the most constrained firms belong to high sales growth industries but have low sales growth. [12]

Firm profitability is measured as income before extraordinary items (Compustat item 18) over average total assets (Compustat item 6). This variable is called INCOME and its definition is equivalent to the accounting rate of return on assets.

Corporate investment is measured as the change in net operating assets plus change in financial assets scaled by average total assets (INVEST). This definition is equivalent to the concept of "reinvestment of earnings" proposed in Dechow et al. 2008. Compared to previous studies in Economics, this measure is a more comprehensive proxy of corporate investment since it includes not only capital expenditures, but also investment in working capital, financial assets (cash retention) and intangible assets. Net operating assets are calculated as total assets (Compustat data item 6) less cash and short-term investments (Compustat item 1) minus non debt liabilities (Compustat data item 181 less Compustat data item 9 minus Compustat data item 34). Financial assets are calculated as cash and short-term investments (Compustat data item 1).

The tests on profitability persistence also employ the distributed component of earnings (DIST). This variable is defined as the sum of the annual net distributions to equity holders (calculated as the net reductions in equity[13] plus earnings) and

[12] Examples of financially constrained firms are provided in Appendix A.

[13] Negative values indicate equity issuances and positive values represent distributions. Equity is calculated as total assets (Compustat data item 6) less total liabilities (Compustat data item 181).

annual net distributions to debt holders (calculated as the net reduction in debt[14]). This variable is also scaled by average total assets.

The tests on write-downs use accumulated future total write-downs scaled by average total assets. To measure this variable, this paper uses Compustat item 381 (WDA), which includes the sum of all special items after taxes that correspond to Write-downs. This item includes: (a) Impairment of assets other than goodwill and (b) Write-down/write-off of assets other than goodwill. Compustat only includes a significant number of write-down observations from 2000, for this reason tests on write-downs are restricted to the period 2000-2011. After data restrictions, the sample includes 25,935 (3,677 non-zero values) firm-year observations for the period 2000-2011.

Tests on goodwill impairments use accumulated goodwill impairments scaled by average total assets. To measure this variable, this study uses Compustat item GDWLIA which is the sum of all goodwill impairments. Similar to write-down data, Compustat only includes a significant number of goodwill impairment observations from 2000, for this reason tests on goodwill impairment are also restricted to the period 2000-2011. After data restrictions, the sample includes 25,935 (1,779 non-zero values) firm-year observations for the period 2000-2011.

The tests on stocks returns use twelve-month buy-and-hold market adjusted returns, inclusive of dividends and other distributions. The returns are computed from the CRSP monthly returns file. The annual return measurement interval starts in the fourth month after the previous fiscal year end to allow time for the annual financial information to be made publicly available. For firms that are delisted during the future return window, the remaining return is calculated by first applying CRSP's delisting return and then reinvesting any remaining proceeds in the CRSP value-weighted market index. This mitigates concerns with potential survivorship biases.

Figure 2 shows the timeline for variable measurement. At the beginning of each year t, firms are classified in quintiles according to their level of financial constraints (WW index). The firms in the lowest quintile of WW index are classified as flexible firms, whereas those in highest quintile are classified as constrained. Investment is measured during year t. Dependent variables such as profitability, write-downs[15] and returns are measured in year t+1. In empirical tests, control variables are measured

[14] Negative values represent debt issuances and positive values represent debt repayments. Debt is calculated as long-term debt (Compustat data item 9) plus short-term debt (Compustat data item 34).
[15] Write-downs measured in different accumulation periods: 1, 2, 3 and 4 years.

in year t. To avoid the potential distortion of influential observations, control variables as size, market to book and leverage are measured as decile ranks.[16]

4.3 Descriptive Statistics

Table 2 contains univariate statistics for the main variables used in this study. The mean and median for the annual rate of return on assets (INCOME) in this sample are 0.0519 and 0.0588 respectively. Table 2 also shows that the mean (median) firm annually invests around 11% (7%) of average total assets. The volatility of this investment is high compared with the volatility of earnings (21% versus 11%). The mean (median) of net distributions to equity and debt holders (DIST) is -0.0587 (-0.0051). This negative value reflects that, on average, firms raise more capital than they distribute. The statistics for write-downs and goodwill impairments show that they are not very common in the sample. In fact, if we consider zero observations, the average firm recognize annual write-downs equivalent to only 0.16% of average assets. Similarly, on average, firms only impair goodwill impairments equivalent to 0.27% of average assets, annually.

The statistics for returns show that, on average, firms have positive but small market adjusted returns (1.33%). In contrast, the median firm exhibit a negative market adjusted return. The standard deviation of this variable is relatively high (45%). Finally, the table also provides statistics for some control variables. In particular, the average (median) has total assets of 238 (199) million, exhibit a market to book ratio of 2.82 (1.83), and a debt to assets ratio equal to 0.21 (0.20).

Table 3 contains pairwise Pearson correlations for the variables used in this study. There is a strong negative correlation between INVEST and DIST (-0.742), which is consistent with prior literature (Dechow 1994, Dechow, Richardson and Sloan 2008). Moving across the INVEST column, we see a positive correlation between investment and write-downs (0.106) and between investment and goodwill impairments (0.127). This suggests that firms that invest more also recognize more impairments. Investment is also positively correlated to size, market to book ratio and financial leverage. The correlation between investment and next year stock return is negative (-0.042), consistent with the idea that firms that invest more tend to exhibit poor future performance.

[16] Deciles ranks are calculated each year. This variable fluctuates between 0 and 1 and is computed as (decile number-1)/9.

Moving across the financial constraint index row, we observe that the financial constraints index is positively correlated to investment (0.066) and negatively correlated to distribution of cash (-0.233). This suggests that financially constrained firms demand more investment over total assets and are less prone to distribute capital than financially flexible firms. Financial constraints are positively associated with market to book and debt to assets ratio and negatively associated with size. This suggests that financially constrained firms tend to be small firms with good investment opportunities and low financial capacity.

Table 4 shows averages by quintiles of financial constraints constructed from Whited and Wu (2006) index calculated at the beginning of each year. The objective of this analysis is to describe the main variables used in this study, classifying firms according to their ex-ante levels of financial constraints.

The table shows that, on average, financially flexible firms tend to exhibit higher current profitability than constrained firms. The statistics also show that financially constrained firms tend to invest more as percentage of total assets. This is not surprising since financially constrained firms tend to be small and growing firms with good investment opportunities. Untabulated results show that the investment of financially constrained firms is more concentrated in working capital assets and financial assets (cash retention) than the investment of flexible firms.

The statistics on net distribution to equity and debt holders (DIST) provides interesting insights regarding the financing of investment. Table 4 shows that financially constrained firms finance their investments exhausting their internal resources, but also raising equity. From Table 1 we knew that constrained firms have restricted access to bond markets (less than 1% of firms have long term debt ratings), and their long term financing from banks is limited. This is an important result, since it suggests that financially constrained firms are willing to raise money from equity markets to grow even though these funds are highly expensive for them. Untabulated results show that financially constrained finance their deficit using equity financing (more than 80% of the external financing is equity financing).

The statistics show mixed results for 1-year ahead write-downs and goodwill impairments. In general, constrained firms do not appear to have lower write-downs than flexible firms, although they tend to have lower goodwill impairments. However, prior research has found that firms tend to delay the impairment of assets until it is obvious that the future benefits of the goodwill have largely expired (Li and Sloan 2014), for this reason tests on write-downs and goodwill impairments are conducted on different accumulation periods (1-4 years ahead).

Chapter 5

Results

5.1 Earnings Persistence Tests

Section 3 presents a key prediction concerning persistence in profitability. If financially constrained firms are more likely to invest in positive NPV projects (and less likely to make value decreasing decisions) than financially flexible firms then the investment of financially constrained firms will exhibit higher persistence in profitability than the investment of financially flexible firms.

To test this prediction, this paper provides a regression analysis of next year's profitability on current profitability and controls:

$$INCOME_{it+1} = \alpha_1 \text{CONS} + \alpha_1 FLEX_{it} + \beta_1 INCOME_{it} + \beta_2 INCOME_{it} \cdot \text{CONS}_{it} + \beta_3 INCOME_{it} \cdot FLEX_{it} + \text{Controls}_{it} + \varepsilon_{it} \quad (2)$$

Where: CONS is an indicator variable that takes a value equal to 1 if the firm is in the highest quintile of WW index at the beginning of current year (end of prior year), and 0 otherwise. FLEX is an indicator variable that takes a value equal to 1 if the firm is in the lowest quintile of WW index at the beginning of current year (end of prior year), and 0 otherwise. INCOME is the measure of profitability defined in section 3. The regression includes controls for firm characteristics, year and industry effects.

If financially constrained firms are more likely to invest in positive NPV projects (and less likely to make value decreasing decisions) than financially flexible firms then the sum of β_1 and β_2 will be significantly higher than the sum of $\beta 1$ and $\beta 3$.

Table 5 Panel A presents the results for regressions based on equation (2). The regression was estimated for three models, depending on the controls included. Regression 1 only includes year effects. Regression 2 includes both year and industry effects, while regression 3 also includes controls for market to book ratio, size and financial leverage.

The results of the regressions are consistent with prediction 1. In particular, the coefficient on the interaction between current profitability and constrained firms (β_2) is positive and significant (between 0.077 and 0.111). In contrast, the coefficient on the interaction between current profitability and flexible firms (β_3) is negative although is not significant. Based on Regression 3, Table 5 Panel B shows that for constrained firms the persistence of profitability is 0.787. In contrast, for flexible firms the persistence in profitability is only 0.630. This difference is significantly different from 0 with t-test= 4.27.

Figure 3 illustrates the lower persistence of earnings performance for financially flexible firms relative to financially constrained firms. The figure provides a time-series plot of earnings performance for firm-years in the extreme quintiles ranked by financial constraints index (WW). Year 0 represents the year in which firms are ranked into the extreme quintiles. The figure shows that before the measurement period (t-4 to t-1) the mean profitability of financially flexible firms is high and stable, this situation changes during the period after year 0. The profitability decreases significantly reverting to the mean, which is consistent with the investment in projects that are less profitable than those developed in the past. Figure 3 also shows that before the measurement period (t-4 to t-1) the mean profitability of financially constrained firms is low although increasing. After year 0, the profitability continues to grow for at least 4 more years.

To get more insight with respect to the relation between financial constraints and persistence in profitability this paper investigates whether the differences in persistence in profitability between both groups (constrained and flexible) are directly related to the investment.[17]

Figure 4 illustrates the lower persistence of earnings performance for financially flexible firms relative to financially constrained firms in the highest level of investment. The figure provides a time-series plot of earnings performance for firm-years in the extreme quintiles ranked by financial constraints index (WW): Constrained vs. Flexible. Year 0 represents the year in which firms are ranked into the extreme quintiles. The figure shows that before the measurement period (t-4 to t-1) the mean profitability of financially flexible firms in the highest quintile of investment is high and increasing, this situation changes dramatically during the

[17] Appendix B shows that earnings can be decomposed in investment component and distribution component.

period after year 0. The profitability decreases rapidly and significantly after the measurement period (t+1 to t+4), which would be consistent with a lower investment quality, and possibly with overinvestment of cash flow. Figure 4 also shows that before the measurement period (t-4 to t-1) the mean profitability of financially constrained firms is low although increasing. After year 0, the profitability grows at a higher rate than before year 0 and continues to grow for at least 4 more years.

To provide more evidence on whether the differences in persistence in profitability between constrained and flexible firms are directly related to the investment, this study provides a regression analysis of next year's profitability on current investment, current net distribution and controls:

$$\begin{aligned} INCOME_{it+1} = {} & \alpha_1 \cdot \mathrm{CONS}_{it} + \alpha_1 \cdot FLEX_{it} + \beta_1 \cdot INVEST_{it} + \beta_2 \cdot INVEST_{it} \cdot \mathrm{CONS}_{it} + \beta_3 \cdot INVEST_{it} \cdot FLEX_{it} \\ & + \gamma_1 \cdot DIST_{it} + \gamma_2 \cdot DIST_{it} \cdot \mathrm{CONS}_{it} + \gamma_3 \cdot DIST_{it} \cdot FLEX_{it} + C\mathrm{ontrols}_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

Table 6 Panel A presents the results for regressions based on equation (3). The regression was estimated for three models, depending on the controls included. Regression 1 only includes year effects. Regression 2 includes both year and industry effects, while regression 3 also includes controls for market to book ratio, size and financial leverage.

The results show that the coefficient on the interaction between investment and constrained firms (β_2) is positive and significant (between 0.064 and 0.097). In contrast, the coefficient on the interaction between current investment and flexible firms (β_3) is negative although is not significant. Based on Regression 3, Table 6 Panel B shows that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.142 (0.690 vs. 0.548), significantly different from 0 with t-test= 3.18.[18]

Table 6 also shows that the coefficient on the interaction between current net distribution and constrained firms dummy (γ_2) is positive, although only significant for regression 3 (0.06). In contrast, the coefficient on the interaction between current net distribution and flexible firms dummy (γ_3) is negative although is not significant. Based on Regression 3, Table 6 Panel B shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.105 (0.713 vs. 0.608), significantly different from 0 with t-test= 2.18. Furthermore, Table 6 Panel B shows that the differential persistence between the investment component of earnings and distribution component of earnings tend

[18] The results are qualitatively the same if I include firm fixed effects instead of industry fixed effects.

to be lower for constrained than for flexible firms. The results of Table 6 suggest that the difference in profitability persistence between constrained and flexible firms is mainly explained by differences in the quality of investment.

Collectively, the results of Table 5 and 6 support Hypothesis 1. The investment of financially constrained firms is associated with higher profitability persistence than the investment of financially flexible firms. This suggests that financially constrained firms are more likely to invest in positive NPV projects (less likely to invest in negative NPV projects) than financially flexible firms.

5.2 Tests on Write-downs and Goodwill Impairments

Are the differences in earnings persistence really explained by differences in the quality of the investment projects?

To address the second research question, this paper analyzes the ex-post quality of the investment, by analyzing the incidence and magnitude of write-downs and goodwill impairments. The idea is that if we observed that the incidence and magnitude of future write-downs and goodwill impairments is lower for financially constrained firms, this would be evidence in favor of the idea that the differences in the persistence of profitability between both groups of firms is explained by differences in investment quality.

To test this prediction, this study provides a regression analysis of accumulated write-downs and goodwill impairments on financial constraints proxy (WW index), market to book ratio, size, assets in place, controlling by firm and year effects. The main tests are presented for: (i) Total Write-downs, (ii) Goodwill impairments.

5.2.1 Total Write-downs

Table 6 shows estimation results for the following regressions:

$$WD_{lt,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} + \\ + \beta_4 MARKET/BOOK_{it} + \beta_5 ASSETSIN\,PLACE_{it} + \beta_6 SIZE_{it} + \beta_7 LOSS_{it} + C\text{ontrols}_{it} + \varepsilon_{it} \quad (4)$$

Where WD is write-downs over average total assets accumulated from the end of fiscal year t to the end of fiscal year t+k. The longest accumulation period for these tests is 4 years (k=4). Since the results are presented for different accumulation

periods, the sample is restricted to those firms that have at least 4 consecutive years of Compustat data to show results applied to the same sample.[19] Note that the value of WD is 0 if the firm does not recognize write downs during the period.

If financially constrained firms are more likely to invest in positive (less likely to invest in negative) NPV projects than financially flexible firms, the sum of β_1 and β_2 will be significantly lower than the sum of β_1 and β_3. Market to Book ratio is included to control for the fact that firms with more conservative accounting recognize less write-downs in the future.[20] Consequently, this coefficient is expected to be negative. Assets in place is defined as total assets less cash and equivalents less goodwill, scaled by total assets.[21] This variable is included to control for the fact that firms with more assets subject to be impaired are more likely to recognize write-downs. Size is the logarithm of total assets, and is included as a control variable. Loss is an indicator variable that takes a value equal to 1 if the firm report negative earnings in t and 0 otherwise. This variable is included to control for the possibility that loss firms may be more likely to recognize write-downs in the future. To control for unobservable characteristics, the regressions are estimated using firm and year effects.

Table 7 Panel A shows that the coefficients on all variables are of the predicted signs. In particular, the coefficient on the interaction between investment and financially constrained firms dummy (β_2) tend to be negative and significant for accumulation periods of 2 and 3 years. This suggests that financially constrained firms tend to have lower write-downs than the rest of the firms. In contrast, the coefficient on the interaction between investment and financially flexible firms dummy (β_3) tend to be positive, although is only significant for an accumulation period of 4 years. Table 7 Panel B shows that for accumulation periods longer than one year, the investment of constrained firms is associated with lower write-downs than the investment of flexible firms.

These results support Hypothesis 2. Financially constrained firms tend to exhibit less write-downs in future years than financially flexible firms. Furthermore, this evidence is consistent with the idea that financially constrained firms are more likely to invest in positive NPV projects than financially flexible firms.

5.2.2 Goodwill Impairments

Table 8 shows estimation results for the following regression:

[19] The results are qualitatively the same if the sample is not restricted to have the same number of observations.
[20] Lawrence et al. 2013 shows that asset write-downs are increasing in the beginning of the period book-to-market ratios.
[21] Goodwill is not included in the definition of assets in place, since write-downs do not include goodwill impairments.

$$GWI_{it,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} + \beta_4 MARKET/BOOK_{it} + \beta_5 GOODWILL_{it} + \beta_6 SIZE_{it} + \beta_7 LOSS_{it} + Controls_{it} + \varepsilon_{it} \quad (5)$$

Where GWI is defined as goodwill impairments over average total assets accumulated from the end of fiscal year t to the end of fiscal year t+k. The longest accumulation period for these tests is 4 years (k=4). Since the results are presented for different accumulation periods, the sample is restricted to those firms that have at least 4 consecutive years of Compustat data to show tests applied to the same sample.[22] Similar to write-downs, the value of GWI is 0 if the firm does not recognize goodwill impairments during the period.

If financially constrained firms are more likely to invest in positive NPV projects than financially flexible firms, the sum of β_1 and β_2 will be significantly lower than the sum of β_1 and β_3. Market to Book ratio is included to control for the fact that firms with more conservative accounting recognize less goodwill impairments in the future. Consequently, this coefficient is expected to be negative. Goodwill is defined as goodwill scaled by total assets. This variable is included to control for the fact that firms with larger goodwill are more likely to recognize goodwill impairments. Size is the logarithm of total assets, and is included as a control variable. Loss is an indicator variable that takes a value equal to 1 if the firm report negative earnings in t and 0 otherwise. This variable is included to control for the possibility that loss firms may be more likely to recognize goodwill impairments in the future. To control for unobservable characteristics, the regressions are estimated using firm and year effects.

Table 8 panel A shows that the coefficients of all variables are of the predicted signs. In particular, the coefficient on the interaction between investment and financially constrained firms dummy (β_2) tend to be negative, and it is significant for accumulation periods of 3 and 4 years. This suggests that financially constrained firms tend to have lower goodwill impairments than the rest of firms. In contrast, the coefficient on the interaction between investment and financially flexible firms dummy (β_3) tend to be positive although is not significant. Table 8 Panel B shows that for accumulation periods larger than two years the investment of constrained firms is associated with significant lower goodwill impairments than the investment of flexible firms.

Consistent with the evidence on write-downs, goodwill impairment tests also support Hypothesis 2. The investment of financially constrained firms is less associated with future impairments than the investment of financially flexible firms. Collectively, this evidence is consistent with the idea that financially constrained

[22] The results are qualitatively the same if the sample is not restricted to have the same number of observations.

firms are more likely to invest in positive NPV projects than financially flexible firms.

5.3 Stock Returns Tests

Section 3 also presents a prediction for future returns. If markets are efficient and investors are rational we would not observe a systematic positive or negative relation between investment and future returns, since investors would anticipate the effect of the investment at the announcement. However, if investors do not completely understand the implications of investment for future firm performance for financially constrained and flexible firms, we will observe that cross-sectional differences in the degree of financial constraints explain the implications of investment for future returns.

To test this prediction, this paper provides a regression analysis of next year's market adjusted returns on investment and financial constraint dummies. Investment (INVEST) is measured as a decile rank, where 0 is the lowest decile of investment and 1 is the highest. The main tests are presented in Table 9 and include controls for other well-documented return predictors including market-to-book ratio (M/B), market capitalization (Size) and Debt to Assets (Leverage).

$$RET - MKT_{it,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} + \beta_4 MARKET/BOOK_{it} + \beta_7 SIZE_{it} + \beta_8 LEVERAGE_{it} + C\text{Controls}_{it} + \varepsilon_{it} \quad (6)$$

If capital markets are efficient, the sum of β_1 and β_2 will be no different from the sum of β_1 and β_3. However, if investors do not understand the role of financial constraints on the relation between investment and future profitability, β_1 and β_2 will be higher than β_1 and β_3.

Table 9 Column 1 (Regression 1) analyzes the effect of investment and financial constraints. Regression 1 indicates that both financial constraints and investment explain cross sectional variation in abnormal returns. Similar to prior research, the level of investment is associated with negative abnormal returns. In particular, the returns of firms in the highest decile of investment is 3.5 percentage points lower than the returns of firms in the lowest decile of investment. In addition, we can observe, that the returns of firms that a priori are constrained is two percentage points higher than the rest of the sample.

Column 2 provides more insight by examining the interaction between financial constraints and investment on future returns. The coefficients on the indicator variables of financial flexible firms and constrained firms (α_2 and α_3) are not significant. In contrast, the coefficient on the interaction between investment and financially flexible firms dummy (β_3) is negative and significant, while the coefficient on the interaction between investment and financially constrained firms dummy (β_2) tend to be positive (although is not significant). The results indicate that most of the positive abnormal return exhibited by financially constrained firms in Regression 1 is associated with the investment activity.

Table 9 Panel B presents Wald Tests on the difference between flexible and constrained firms. The results show that the investment of constrained firms is associated with higher abnormal returns than the investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of investment is 4.8 percentage points higher than the annual return of financially flexible firms. Furthermore, the investment of financially constrained firms is not significantly associated with negative future abnormal returns. In contrast, for financially flexible firms the investment is significantly associated with negative future abnormal returns.

Table 10 exhibits next-year size and book to market adjusted abnormal stock returns for 25 portfolios formed using Investment (INVEST) and Financial Constraint Index (WW) quintiles. The table shows that for the lowest level of investment (Investment Quintile 1) both financially flexible and financially constrained firms present positive abnormal returns, although the difference between both groups is not statistically significant. The positive abnormal return for financially flexible firms may suggest that this group of firms would not be overinvesting its cash flow. For investment quintiles 2 and 3, the difference in abnormal return between financially constrained and flexible firms is not statistically significant. The results for investment quintiles 1-3 suggest that for medium and low levels of investment, the differences in investment efficiency between constrained and flexible firms would not be significant.

However, for large levels of investment (Quintiles 4 and 5) the abnormal return of financially flexible firms is negative and significant, while the abnormal return of financially flexible firms is not negative. In particular, the difference in abnormal return between constrained and flexible firms for the highest level of investment (Quintile 5) is 3.81% per year. Collectively, these results support Hypothesis 3. High levels of investment, equity investors do not fully understand that financially flexible firms have higher propensity to invest in inefficient projects than financially constrained firms. This is an important result, since it suggests that the negative

relation between investment and future abnormal return is not general to the entire cross-section of firms.

Chapter 6

Additional Analysis and Robustness Tests

6.1 Decomposition of Investment

This section provides an analysis of the decomposition of investment between investment in net operating assets (NOA) and investment in financial assets (FA). The objective of this section is to provide evidence on whether the previous results are dominated by investment in operating assets or financial assets.

6.1.1 Earnings Persistence results

Table 11 Panel A presents the results for regressions based on equation (7).

$$\begin{aligned} INCOME_{it+1} = {} & \alpha_1 \cdot \text{CONS} + \alpha_1 \cdot FLEX_{it} + \beta_1 \cdot \Delta NOA_{it} + \beta_2 \cdot \Delta NOA_{it} \cdot \text{CONS}_{it} + \beta_3 \cdot \Delta NOA_{it} \cdot FLEX_{it} + \\ & + \gamma_1 \cdot \Delta FA_{it} + \gamma_2 \cdot \Delta FA_{it} \cdot \text{CONS}_{it} + \gamma_3 \cdot \Delta FA_{it} \cdot FLEX_{it} \\ & + \delta_1 \cdot DIST_{it} + \delta_2 \cdot DIST_{it} \cdot \text{CONS}_{it} + \delta_3 \cdot DIST_{it} \cdot FLEX_{it} + C\text{ontrols}_{it} + \varepsilon_{it} \end{aligned} \quad (7)$$

To keep consistency with previous section the regression was estimated for three models, depending on the controls included. Regression 1 only includes year effects. Regression 2 includes both year and industry effects, while regression 3 also includes controls for market to book ratio, size and financial leverage.

The results show that the coefficient on the interaction between investment in net operating assets (NOA) and constrained firms (β_2) is positive although only significant for the third model (0.072). In contrast, the coefficient on the interaction between investment in net operating assets and flexible firms (β_3) is negative

although is not significant. The same table shows that the coefficient on the interaction between investment in financial assets (FA) and constrained firms (γ_2) is positive and significant across all models (between 0.08 and 0.114)). In contrast, the coefficient on the interaction between investment in financial assets and flexible firms (γ_3) is negative although is not significant.

Based on Regression 3, Table 11 Panel B shows that the NOA investment of constrained firms is associated with higher persistence of profitability than the NOA investment of flexible firms. In particular, the difference in persistence between both groups is 0.103 (0.645 vs. 0.542), significantly different from 0 with t-test= 2.36. Table 11 Panel B also shows that the FA investment of constrained firms is associated with higher persistence of profitability than the FA investment of flexible firms. In particular, the difference in persistence between both groups is 0.164 (0.762 vs. 0.598), significantly different from 0 with t-test= 3.81.

In summary, the results suggest that for financially constrained firms both components of investment (NOA and FA) are associated with higher profitability persistence than the investment components of financially flexible firms. The results also suggest that the differences between constrained and flexible firms would be stronger for the investment in financial assets, which is consistent with the idea that cash retention is more efficient for financially constrained firms than for flexible firms.

6.1.2 Stock Returns Tests

This section investigates whether investors respond differently to investment in operating assets or financial assets. This section replicates the tests of Table 9 (section 5.3 stock returns) decomposing investment (INVEST) between change in NOA and change in FA. In particular, this paper provides a regression analysis of next year's market adjusted returns on investment components (NOA and FA) and financial constraint dummies (CONS and FLEX). The main tests are presented in Table 12 and include controls for other well-documented return predictors including market-to-book ratio (M/B), market capitalization (Size) and Debt to Assets (Leverage).

$$\begin{aligned} RET-MKT_{it,t+k} = {} & \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 \Delta NOA_{it} + \beta_2 \Delta NOA_{it} \cdot CONS_{it} + \beta_3 \Delta NOA_{it} \cdot FLEX_{it} \\ & + \gamma_1 \Delta FA_{it} + \gamma_2 \Delta FA_{it} \cdot CONS_{it} + \gamma_3 \Delta FA_{it} \cdot FLEX_{it} \\ & + \beta_4 MARKET/BOOK_{it} + \beta_7 SIZE_{it} + \beta_8 LEVERAGE_{it} + \text{Controls}_{it} + \varepsilon_{it} \end{aligned} \quad (8)$$

As in equation 6, if capital markets are efficient, then the sum of β_1 (γ_1) and β_2 (γ_2) will be not different from the sum of β_1 (γ_1) and β_3 (γ_3). However, if investors do not

understand the role of financial constraints on the relation between investment and future profitability, then the sum of β_1 (γ_1) and β_2 (γ_2) will be differ from the sum of β_1 (γ_1) and β_3 (γ_3).

Table 12 Panel A Column 2 shows the results of the interaction between financial constraints and investment components on future returns. The table shows that the interaction between investment in net operating assets and financially constrained dummy is positive and significant (β_2 = 0.0192), while the interaction between investment in net operating assets and financially flexible dummy (β_3) is not different from zero. The table also shows that the interaction between investment in financial assets and financially constrained dummy (γ_2) is not significant, while the interaction between investment in financial assets and financially flexible dummy (γ_3) is negative and significant (γ_3=-0.0283).

Table 12 Panel B shows that for both constrained and flexible firms, the NOA investment is associated with negative future abnormal returns. However, the NOA investment of constrained firms is associated with higher abnormal returns than the investment in NOA investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of NOA investment is 3.3 percentage points higher than the annual return of financially flexible firms. Table 12 Panel B also shows that the FA investment of financially constrained firms is associated with future positive abnormal returns, while the FA investment of financially flexible firms is not associated with positive future abnormal returns. Furthermore, the FA investment of constrained firms is associated with higher abnormal returns than the FA investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of financial asset investment is 3.5 percentage points higher than the annual return of financially flexible firms.

In summary, the results show that financially constrained firms relative to financially flexible firms have, for both component of investment, higher future abnormal returns. The results also suggest that the FA component of investment explains why the total investment (INVEST) of constrained firms (in Table 9) is not associated with negative future abnormal returns, since the NOA investment of financially constrained firms is negatively associated with future abnormal returns.

6.2 Positive Investment

In previous tests, the investment variable included both positive investment (asset expansion) and negative investment (asset contraction). This section, analyzes if the results are robust to the requirement of only positive investment.

6.2.1 Earnings Persistence Tests

Table 13 Panel A presents the results for regressions based on equation (3). The regression was estimated for three models, depending on the controls included. Regression 1 only includes year effects. Regression 2 includes both year and industry effects, while regression 3 also includes controls for market to book ratio, size and financial leverage.

The results show that the coefficient on the interaction between investment and constrained firms (β_2) is positive and significant (between 0.088 and 0.099). In contrast, the coefficient on the interaction between current investment and flexible firms (β_3) is negative although is not significant. Based on Regression 3, Table 13 Panel B shows that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.10 (0.666 vs. 0.565), significantly different from 0 with t-test= 3.05.

Table 13 also shows that the coefficient on the interaction between current net distribution and constrained firms dummy (γ_2) is positive (between 0.062 and 0.094) although only significant for regressions 1 and 2. In contrast, the coefficient on the interaction between current net distribution and flexible firms dummy (γ_3) is negative although is not significant. Based on Regression 3, Table 6 Panel B shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.060 (0.715 vs. 0.655), significantly different from 0 with t-test= 2.09. Furthermore, Table 13 Panel B shows that the differential persistence between the investment component of earnings and distribution component of earnings tend to be lower for constrained than for flexible firms. The results of Table 13 are consistent with the results of Table 6, suggesting that the difference in profitability persistence between constrained and flexible firms is mainly explained by differences in the quality of investment.

6.2.2 Tests on Write-downs and Goodwill Impairments

6.2.2.1 Total Write-downs

Table 14 shows estimation results for the following regression:

$$WD_{it,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} + \\ + \beta_4 MARKET/BOOK_{it} + \beta_5 ASSETSIN PLACE_{it} + \beta_6 SIZE_{it} + \beta_7 LOSS_{it} + \text{Controls}_{it} + \varepsilon_{it} \quad (9)$$

Table 14 Panel A shows that the coefficients of all variables present the predicted signs. In particular, the coefficient on the interaction between investment and financially constrained firms dummy (β_2) tend to be negative and significant for accumulation periods of 2 and 3 years. This suggests that financially constrained firms tend to have lower write-downs than the rest of firms. In contrast, the coefficient on the interaction between investment and financially flexible firms dummy (β_3) tend to be positive, although is not significant. Table 14 Panel B shows that for accumulation periods longer than 1 year, the investment of constrained firms is associated with lower write-downs than the investment of flexible firms.

The results of Table 14 are similar to the results of Table 7, suggesting that financially constrained firms tend to exhibit less write-downs in future years than financially flexible firms. Furthermore, this evidence is consistent with the idea that financially constrained firms are less likely to invest in negative NPV projects than financially flexible firms.

6.2.2.2 Goodwill Impairments

Table 15 shows estimation results for the following regression:

$$GWI_{it,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} \\ + \beta_4 MARKET/BOOK_{it} + \beta_5 GOODWILL_{it} + \beta_6 SIZE_{it} + \beta_7 LOSS_{it} + \text{Controls}_{it} + \varepsilon_{it} \quad (10)$$

Table 15 panel A shows that the coefficients of all variables present the predicted signs. In particular, the coefficient on the interaction between investment and financially constrained firms dummy (β_2) tend to be negative, and it is significant for an accumulation period of 2 years. This suggests that financially constrained firms tend to have lower goodwill impairments than the rest of firms. In contrast, the coefficient on the interaction between investment and financially flexible firms dummy (β_3) is not significant. Table 15 Panel B shows that for accumulation periods of 2 and 3 years the investment of constrained firms is associated with significant lower goodwill impairments than the investment of flexible firms.

The results of Table 15 are qualitatively the same as those reported in Table 8, suggesting that the investment of financially constrained firms is less associated with future impairments than the investment of financially flexible firms. Collectively, this evidence is consistent with the idea that financially constrained firms are less likely to invest in negative NPV projects than financially flexible firms.

6.2.3 Stock Returns Tests

The main tests are presented in Table 16 and include controls for other well-documented return predictors including market-to-book ratio (M/B), market capitalization (Size) and Debt to Assets (Leverage).

$$RET-MKT_{it,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} + \beta_4 MARKET/BOOK_{it} + \beta_7 SIZE_{it} + \beta_8 LEVERAGE_{it} + \text{Controls}_{it} + \varepsilon_{it} \quad (11)$$

Column 1 (Regression 1) of Table 16 analyzes the effect of investment and financial constraints without including interactions. The Table shows that both financial constraints and investment explain cross sectional variation in future abnormal returns. Similar to prior research, the level of investment is associated with negative future abnormal returns. In particular, the return of firms in the top decile of investment is 5.4 percentage points lower than the returns of firms in the lowest decile of investment. In addition, we can observe, that the return of firms that a priori are constrained is 2.1 percentage points higher than the rest of the sample.

Column 2 provides more insight on the effect of the interaction between financial constraints and investment on future returns. Most of the positive abnormal return exhibited by financially constrained firms in regression 1 is associated with the investment activity. Note that the indicator variable of financial constrained firms (α_2) is not significant, while the coefficient on the interaction between investment and financially constrained firms dummy (β_2) is positive and significant. In contrast, the coefficient on the interaction between investment and financially flexible firms dummy (β_3) is not significant.

Table 16 Panel B shows that the investment of constrained firms is associated with higher abnormal returns than the investment of flexible firms. In particular, the return of financially constrained firms in the top decile of investment is 4.4 percentage points higher than the return of financially flexible firms. Furthermore, the investment of financially constrained firms is not significantly associated with lower abnormal returns. In contrast, for financially flexible firms the investment is significantly associated with lower abnormal returns.

The results of Table 16 are qualitatively the same as those reported in Table 9. This is consistent with the idea that for high levels of investment, equity investors do not fully understand that financially flexible firms have higher propensity to invest in inefficient projects than financially constrained firms.

In summary, the analysis presented in this section reveals that the results of section 5 are robust to the use of only positive investment as explanatory variable.

6.3 Other Measures of Accounting Performance

This section explores whether the earnings persistence tests are sensitive to different performance metrics. In particular, this section analyzes earnings persistence employing two alternative measures: Income before Extraordinary Items, Interest and Taxes, and Operating Income.

6.3.1 Income before extraordinary items before interest and taxes

Table 17 Panel A presents the results for regressions based on equation (3) using income before extraordinary items before interest and taxes over average total assets as dependent variable. The regression was estimated for three models, depending on the controls included. Regression 1 only includes year effects. Regression 2 includes both year and industry effects, while regression 3 also includes controls for market to book ratio, size and financial leverage.

The results show that the coefficient on the interaction between investment and constrained firms (β_2) is positive (between 0.041 and 0.100) and significant for regressions 2 and 3. In contrast, the coefficient on the interaction between current investment and flexible firms (β_3) is negative although is not significant. Based on Regression 3, Table 17 Panel B shows that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.146 (0.701 vs. 0.555), significantly different from 0 with t-test= 3.27.

Table 17 also shows that the coefficient on the interaction between current net distribution and constrained firms dummy (γ_2) is only positive and significant for regression 3 (0.063). In contrast, the coefficient on the interaction between current net distribution and flexible firms dummy (γ_3) is negative although is not significant. Based on Regression 3, Table 17 Panel B shows that the net distribution of

constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.109 (0.726 vs. 0.617), significantly different from 0 with t-test= 2.28. The results of Table 17 are qualitatively the same as the results of Table 6 suggesting that the difference in profitability persistence between constrained and flexible firms is mainly explained by differences in the quality of investment.

6.3.2 Operating Income

Table 18 panel A presents the results for regressions based on equation (3) using operating over average total assets as dependent variable. The regression was estimated for three models, depending on the controls included. Regression 1 only includes year effects. Regression 2 includes both year and industry effects, while regression 3 also includes controls for market to book ratio, size and financial leverage.

The results show that the coefficient on the interaction between investment and constrained firms (β_2) is positive and significant (between 0.051 and 0.107). In contrast, the coefficient on the interaction between current investment and flexible firms (β_3) is negative although is not significant. Based on Regression 3, Table 18 Panel B shows that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.199 (0.742 vs. 0.543), significantly different from 0 with t-test= 3.49.

Table 18 also shows that the coefficient on the interaction between current net distribution and constrained firms dummy (γ_2) is positive, although only significant for regression 3 (0.068). In contrast, the coefficient on the interaction between current net distribution and flexible firms dummy (γ_3) is negative although is not significant. Based on Regression 3, Table 18 Panel B shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.161 (0.749 vs. 0.587), significantly different from 0 with t-test= 2.73.

Collectively, Table 17 and 18 confirm that the results obtained in section 5.1(earnings persistence) are not sensitive to the choice of earnings performance.

6.4 Bond Ratings as a Proxy for Financial Constraints

This section investigates whether the results are robust to an alternative proxy for financial constraints index. This paper follows Almeida, Campello and Weisbach (2004) by using the existence of Bond Ratings as a measure of financial constraints.[23] A firm is considered constrained in a given year if it has never had a bond rating before. In contrast, financially unconstrained firms are those whose bonds have been rated during the sample period.

6.4.1 Earnings Persistence Tests

Table 19 Panel A presents the results for regressions based on equation (3). The regression was estimated for three models, depending on the controls included.

The results show that the coefficient on the interaction between investment and unconstrained firms (FLEX) (β_2) is negative and significant (between -0.109 and -0.129). Based on Regression 3, Table 19 Panel B shows that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.129 (0.634 vs. 0.505), significantly different from 0 with t-test= 3.73.

Table 19 also shows that the coefficient on the interaction between net distribution and unconstrained firms dummy (FLEX) (γ_2) is negative and significant (between -0.105 and -0.134). Based on Regression 3, Table 19 Panel B shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.134 (0.683 vs. 0.549), significantly different from 0 with t-test= 3.69.

The results of Table 19 show that the earnings persistence results are robust to a different proxy for financial constraints. In particular, the results of Table 19 are qualitatively the same as those reported in section 5.1 (Table 6).

[23] Comprehensive coverage of bond ratings by COMPUSTAT only starts in the mid-1980s.

6.4.2 Stock Returns Tests

The main tests are presented in Table 20 and include controls for other well-documented return predictors including market-to-book ratio (M/B), market capitalization (Size) and Debt to Assets (Leverage).

Column 1 (Regression 1) of Table 20 analyzes the effect of investment and financial constraints without including interactions. The table shows that both financial unconstrained dummy (FLEX) and investment explain cross sectional variation in abnormal returns. Similar to prior research, the level of investment is associated with negative abnormal returns. In particular, the returns of firms in the highest decile of investment is 2.1 percentage points lower than the returns of firms in the lowest decile of investment. In addition, we can observe, that the return of firms that a priori are unconstrained is 2.2 percentage points lower than constrained firms.

Column 2 provides more insight on the effect of the interaction between financial constraints and investment on future returns. Most of the positive abnormal return exhibited by financially constrained firms in regression 1 is associated with the investment activity. Note that the indicator variable of financial unconstrained firms (α_1) is not significant, while the coefficient on the interaction between investment and financially unconstrained firms dummy (β_2) is negative and significant.

Table 20 Panel B shows that the investment of constrained firms is associated with higher future abnormal returns than the investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of investment is 2.8 percentage points higher than the annual return of financially flexible firms. Furthermore, the investment of financially constrained firms is not associated with negative abnormal returns. In contrast, the investment of financially flexible firms the investment is significantly associated with negative abnormal returns.

The results of Table 20 confirm that the return results presented in section 5.3 (Table 9) are robust to a different proxy for financial constraints.

6.5 Firm Age

This section investigates whether the results are sensitive to the inclusion of firm age as a control variable. A priori, old firms are likely to be less financially constrained than young firms. The correlations in Table 3 indicate that the proxy for financial constraints is positively correlated with firm age. Therefore, it is worth checking

whether the results are affected by the omission of firm age in the empirical analysis.

6.5.1 Persistence Tests

Table 21 Panel A presents the results for two regressions based on equation (3). The only difference between them is that regression 2 includes Firm Age as control variable. Firm age is measured as the logarithm of the number of fiscal years that a firm is present in the Compustat Database since 1950. These regressions include industry and year fixed effects and controls for market to book ratio, size and financial leverage.

The results of Table 21 show that there are no significant differences between both models (with and without Firm Age as a control variable). In particular, the coefficient on the interaction between investment and constrained firms (β_2) is positive and significant for both models (same magnitude 0.097). The coefficient on the interaction between current investment and flexible firms (β_3) is negative although is not significant for both models as well. Based on Regression 2, Table 21 Panel B shows that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.147 (0.691 vs. 0.544), significantly different from 0 with t-test= 3.39.

Table 21 also shows that the coefficient on the interaction between distribution and constrained firms (β_2) is positive, significant and similar in magnitude for both models (0.0601 vs. 0.0626). The coefficient on the interaction between distribution and flexible firms (β_3) is negative although is not significant for both models as well. Based on Regression 2, Table 21 Panel B shows that the distribution of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.112 (0.711 vs. 0.599), significantly different from 0 with t-test= 2.4.

The results of Table 21 show that the earnings persistence results are robust to the inclusion of Firm Age as a control variable. In particular, the results of Table 21 are qualitatively the same as those reported in section 5.1 (Table 6).

6.5.2 Return Tests

Table 22 panel A presents the results for two regressions based on equation (3). The only difference between them is that regression 2 includes Firm Age as control

variable. Firm age is measured as the logarithm of number of fiscal years that a firm is present in the Compustat Database since 1950. These regressions include firm and year fixed effects and controls for market to book ratio, size and financial leverage.

The results of Table 22 show that there are no significant differences between both models (with and without Firm Age as a control variable). In particular, the coefficient on the interaction between investment and constrained firms (β_2) is positive although not significant for both models. The coefficient on the interaction between current investment and flexible firms (β_3) is negative and significant for both models as well (-0.0278 vs. -0.0272).

Table 22 Panel B shows that the investment of constrained firms is associated with higher future abnormal returns than the investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of investment is 4.7 percentage points higher than the annual return of financially flexible firms, significantly different from 0 with t-test= 2.66. Furthermore, the investment of financially constrained firms is not significantly associated with negative future abnormal returns. In contrast, for financially flexible firms the investment is significantly associated with negative future abnormal returns (-0.0629).

The results of Table 22 show that the return results are robust to the inclusion of Firm Age as a control variable. In particular, the results of Table 22 are qualitatively the same as those reported in section 5.3 (Table 9).

6.6 Research & Development Investment

This section analyzes whether the conclusions of section 5 can also be extended to investment that is not capitalized. Research & Development is a form of investment that firms expense immediately. This component of investment is not captured in the change of NOA. For this reason, the analysis of R&D can gives more insight about the interaction between financial constraints and investment on future returns. If the implications of current investment on future returns are different for financially constrained and financially flexible firms, we should find an effect for R&D investment as well.

Table 23 panel A presents the results for regressions based on equation (3). The regression was estimated for three models, depending on the controls included.

$$RET-MKT_{it,t+k} = \alpha_1 CONS_{it} + \alpha_2 FLEX_{it} + \beta_1 INVEST_{it} + \beta_2 INVEST_{it} \cdot CONS_{it} + \beta_3 INVEST_{it} \cdot FLEX_{it} + \gamma_1 R\&D_{it} + \gamma_2 R\&D_{it} \cdot CONS_{it} + \gamma_3 R\&D_{it} \cdot FLEX_{it} + \beta_4 MARKET/BOOK_{it} + \beta_7 SIZE_{it} + \beta_8 LEVERAGE_{it} + \text{Controls}_{it} + \varepsilon_{it} \quad (12)$$

As equation 6, if capital markets are efficient the sum of β_1 (γ_1) and β_2 (γ_2) will not be different from the sum of β_1 (γ_1) and β_3 (γ_3). However, if investors do not understand the role of financial constraints on the relation between investment and future profitability, the sum of β_1 (γ_1) and β_2 (γ_2) will be different from the sum of β_1 (γ_1) and β_3 (γ_3).

Table 23 Panel A column 1 shows a significant difference between R&D investment and capitalized investment (INVEST). R&D investment is associated with positive future abnormal return. In spite of this asymmetry, the difference between constrained and flexible firms is also present for R&D investment. In particular, Panel A column 2 shows that the interaction between R&D investment and financially constrained dummy (γ_2) is not significant, while the interaction between investment in financial assets and financially flexible dummy is negative and significant (γ_2=-0.0459). This is consistent with the result for capitalized investment. In fact, the table shows that the interaction between capitalized investment (INVEST) and financially constrained dummy is positive although is not significant, while the interaction between capitalized investment (INVEST) and financially flexible dummy is negative and significant (β_3=-0.0279).

Table 23 Panel B shows that the R&D investment of constrained firms is associated with future higher abnormal returns than the R&D investment of flexible firms. In particular, the annual return of financially constrained firms in the highest level of R&D investment is 3.6 percentage points higher than the annual return of financially flexible firms. Similarly, Table 23 Panel B also shows that the capitalized investment (INVEST) of constrained firms is associated with higher future abnormal returns than the capitalized investment of flexible firms. In particular, the annual return of financially constrained firms in the highest level of capitalized investment (INVEST) is 4.8 percentage points higher than the annual return of financially flexible firms.

In conclusion, regardless whether the investment is capitalized or expensed the results show that the investment of financially constrained firms is associated with higher future abnormal returns than the investment of financially flexible firms.

6.7 Sample Period

This section investigates whether the results are sensitive to different sample periods. In particular, this section analyzes two periods: 1962-1989 and 1990-2011.

6.7.1 Persistence Tests

Table 24 Panel A presents the results for two regressions based on equation (3). The only difference between them is that regression 1 covers the sample period 1962-1989, while regression 2 covers the sample period 1990-2011. These regressions include industry and year fixed effects and controls for market to book ratio, size and financial leverage.

The results of Table 24 Panel A show that the persistence coefficients of both component of earnings (INVEST and DIST) tend to be higher for the sub-period 1962-1989 than for 1990-2011. The table also shows that the coefficient on the interaction between investment and constrained firms (β_2) is positive, significant and similar in magnitude for both sample periods (0.089). The coefficient on the interaction between current investment and flexible firms (β_3) is negative although is not significant for both sample periods as well. Table 24 Panel B shows that for both sample periods the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, for the period 1962-1989 the difference in persistence between both groups is 0.103 (0.714 vs. 0.611), significantly different from 0 with t-test= 3.30. Similarly, for the period 1990-2011 the difference in persistence between both groups is 0.139 (0.671 vs. 0.531), significantly different from 0 with t-test= 2.74.

Table 24 also shows that the coefficient on the interaction between distribution and constrained firms (β_2) tend to be positive, although is not significant in both periods. The coefficient on the interaction between distribution and flexible firms (β_3) tend to be negative although is not significant in both periods as well. Table 24 Panel B shows that for both sample periods the distribution of constrained firms is associated with higher persistence in profitability than the distribution of flexible firms. In particular, for the period 1962-1989 the difference in persistence between both groups is 0.064 (0.724 vs. 0.660), significantly different from 0 with t-test= 2.11. Similarly, for the period 1990-2011 the difference in persistence between both groups is 0.095 (0.689 vs. 0.594), although it is not significantly different from 0 with t-test= 1.87.

The results of Table 24 suggest that the earnings persistence results are robust to the choice of different sample periods. In particular, the results of Table 24 are qualitatively the same as those reported in section 5.1 (Table 6).

6.7.2 Return Tests

Table 25 Panel A presents the results for two regressions based on equation (3). The only difference between them is that regression 1 covers the sample period 1962-1989, while regression 2 covers the sample period 1990-2011. These regressions include firm and year fixed effects and controls for market to book ratio, size and financial leverage.

The results of Table 25 Panel A show that the negative association between current investment and future returns tend to be stronger for the period 1962-1989 than for 1990-2011. In both periods the coefficient on the interaction between investment and constrained firms (β_2) tend to be positive although not significant. In contrast, the coefficient on the interaction between current investment and flexible firms (β_3) tend to be negative, although is only significant for the period 1962-1989.

Table 25 Panel B shows that for both sample periods, the investment of constrained firms is associated with higher future abnormal returns than the investment of flexible firms. In particular, for the period 1962-1989, the annual return of financially constrained firms in the top decile of investment is 6.25 percentage points higher than the annual return of financially flexible firms, significantly different from 0 with t-test= 2.60. Consistent with the results of section 5.3, the investment of financially constrained firms is not significantly associated with negative future abnormal returns. In contrast, for financially flexible firms the investment is significantly associated with negative future abnormal returns (-0.0878). Similarly, for the period 1990-2011, the annual return of financially constrained firms in the top decile of investment is 5.79 percentage points higher than the annual return of financially flexible firms, significantly different from 0 with t-test= 2.25. Again, consistent with the results of section 5.3, the investment of financially constrained firms is not significantly associated with negative future abnormal returns. In contrast, the investment of financially flexible firms is significantly associated with negative future abnormal returns (-0.0441).

The results of Table 25 suggest that the return results are robust to the choice of different sample periods. In particular, the results of Table 25 are qualitatively the same as those reported in section 5.3 (Table 9)

Chapter 7

Conclusions

This paper provides evidence consistent with the idea that the implications of investment on future profitability differ for financially constrained and financially flexible firms. In particular, this study finds that the investment of financially constrained firms is associated with higher persistence in profitability than the investment of flexible firms. This paper also finds that this result is related to differences in future write-downs and goodwill impairments. Finally, it shows that investors do not fully understand the role of financial constraints on the relation between investment and future profitability, since the investment of financially constrained firms is associated with higher one-year ahead abnormal returns than the investment of flexible firms. Moreover, for financially constrained firms, large levels of investment are not associated with negative abnormal returns.

This paper extends the accounting literature by showing that differences in the degree of financial constraints can predict cross-sectional variation in both future earnings performance, and the incidence and magnitude of future write-downs. Taken together, these findings are consistent with the idea that the investment of financially constrained firms is more strongly associated with positive NPV projects than the investment of flexible firms.

Finally, this paper extends the literature on mispricing of corporate investment (Sloan 1996, Fairfield et al. 2003a, Thomas and Zhang 2002, Titman et al. 2004, Richardson et al. 2005 and 2006, Dechow et al. 2008, and Cooper et al. 2008) by showing that the negative relation between corporate investment and future abnormal returns is not general to the entire cross-section of firms. In fact, the investment of constrained firms is not associated with negative future abnormal returns.

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Table 1: Firm Characteristics associated with Financial Constraints

Calculations are based on a sample of nonfinancial firms from COMPUSTAT industrial files. The sample period is 1962 to 2011. Total assets are expressed in millions dollars. Cash Flow/Assets is the ratio of cash flow to total assets. Cash/Assets is the ratio of cash and equivalents over total assets. Positive dividend is calculated as the percentage of firm-year observations with positive cash dividend in each quintile. Bond Ratings is calculated as the percentage of firm-year observations with bond ratings in each quintile (for available period 1984-2011). Long Term Debt/Assets is the ratio of the long-term debt to total assets. Tobin's q is ratio of book value of total assets over the book value of total assets minus the book value of equity plus the market value of equity. Industry Sales Growth is the firm's three-digit industry sales growth. Sales Growth is firm annual sales growth. Age is measured in years.

	Least Constrained	2	3	4	Most Constrained
Total Assets	11,839	1,032	399	166	54
Cash Flow/Assets	0.107	0.101	0.099	0.092	0.035
Cash/Assets	0.086	0.108	0.137	0.172	0.219
Positive Dividend	0.960	0.831	0.634	0.416	0.153
Bond Rating	0.745	0.380	0.189	0.074	0.009
Long Term Debt/Assets	0.202	0.199	0.181	0.151	0.116
Tobin's Q	1.691	1.738	1.797	1.856	2.409
Industry Sales Growth	0.084	0.089	0.093	0.101	0.112
Sales Growth	0.097	0.113	0.125	0.139	0.127
Firm Age	27.31	20.74	16.30	13.35	11.88

Table 2: Descriptive Statistics

The table shows descriptive statistics on: Income = Income before extraordinary Items over average total assets. Invest = change in net operating assets plus change in financial assets over average total assets. Dist: Net capital distributions to debt and equity holders average total assets. Ret_mkt = 12 month buy and hold market adjusted returns. Write-downs = annual write-downs over average total assets. Goodwill Impairments = annual goodwill impairments over average total assets. Size= logarithm of total assets. Market to Book = Market value of equity over book value of equity. Debt to Assets = Long plus short term debt over total assets. Income, Invest, Dist, Write-downs and Goodwill impairments, Market to Book and Debt to Assets are winsorized at 1%-99% tails. Data is from Compustat and CRSP for the period 1962-2011.

	Mean	Median	Q1	Q3	S.D.	Obs.
Income	0.0519	0.0588	0.0249	0.0971	0.1104	95,245
Invest	0.1101	0.0696	0.0072	0.1614	0.2101	95,245
Dist	-0.0587	-0.0051	-0.0887	0.0430	0.2124	95,245
Write-downs	0.0016	0.0000	0.0000	0.0000	0.0103	25,935
Goodwill Impairments	0.0027	0.0000	0.0000	0.0000	0.0251	25,935
Ret-mkt	0.0133	-0.0418	-0.2529	0.1940	0.4510	95,245
Size	5.4625	5.2939	3.9174	6.8090	2.0700	95,245
Market to Book	2.8219	1.8378	1.1342	3.0933	3.6607	95,245
Debt to Assets	0.2135	0.1981	0.0603	0.3244	0.1721	95,245

Table 3: Correlations

The table shows pairwise correlations on: Income = Income before extraordinary Items over average total assets. Invest = change in net operating assets plus change in financial assets over average total assets. Dist: Net capital distributions to debt and equity holders average total assets. Ret_mkt = 12 month buy and hold market adjusted returns. Write-downs = annual write-downs over average total assets. Goodwill Impairments = annual goodwill impairments over average total assets. Size= logarithm of total assets. Market to Book = Market value of equity over book value of equity. Debt to Assets = Long plus short term debt over total assets. Income, Invest, Dist, Write-downs and Goodwill impairments, Market to Book and Debt to Assets are winsorized at 1%-99% tails. Data is from Compustat and CRSP for the period 1962-2011. Correlations that are significantly different from 0 are presented in bold.

				PEARSON	**CORRELATIONS**					
	Inc	Invest	Dist	WD	GWI	Ret	Size	MB	Debt	Fin. Con.
Income	1									
Invest	**0.2417**	1								
Dist	**0.4529**	**-0.7423**	1							
Write-downs	**0.1809**	**0.1066**	**0.0246**	1						
Goodwill Imp.	**0.2388**	**0.1271**	**0.0423**	**0.1108**	1					
Ret-mkt	0.0008	**-0.0420**	**0.0338**	-0.0074	**-0.0124**	1				
Size	**0.1955**	**0.1276**	**0.0154**	0.0058	-0.0037	**-0.0222**	1			
Market to Book	**-0.1905**	**0.0881**	**-0.1973**	-0.0072	0.0006	**-0.0224**	**0.1650**	1		
Debt to Assets	**-0.0403**	**0.0467**	**-0.0720**	**0.0204**	**0.0142**	-0.0049	**-0.0638**	0.0078	1	
Finan. Constr.	**-0.2667**	**0.0661**	**-0.2393**	**-0.0147**	0.0107	0.0053	**-0.4156**	**0.1154**	**0.1009**	1

Table 4: Descriptive Statistics by Financial Constraints Quintiles

The table shows means for the main variables used in this study, partitioned by quintiles constructed from Whited and Wu (2006) index of financial constraints measured at the beginning of the period. Variables are defined as: Income = Income before extraordinary Items over average total assets. Invest = change in net operating assets plus change in financial assets over average total assets. Dist: Net capital distributions to debt and equity holders average total assets. Ret_mkt= 12 month buy and hold market adjusted returns. Write-downs = annual write-downs over average total assets. Goodwill Impairments = annual goodwill impairments over average total assets. Size= logarithm of total assets. Market to Book = Market value of equity over book value of equity. Debt to Assets = Long plus short term debt over total assets. Income, Invest, Dist, Write-downs and Goodwill impairments, Market to Book and Debt to Assets are winsored at 1%-99% tails. Data is from Compustat and CRSP for the period 1962-2011.

	Flexible	**2**	**3**	**4**	**Constrained**
Income	0.0591	0.0579	0.0565	0.0523	0.0372
Invest	0.0626	0.0866	0.1046	0.1239	0.1748
Dist	-0.0037	-0.0292	-0.0487	-0.0724	-0.1374
Write-downs	0.0013	0.0013	0.0018	0.0019	0.0016
Goodwill Impairments	0.0034	0.0027	0.0033	0.0031	0.0016
Ret-mkt	0.0195	0.0199	0.0239	0.0210	0.0107
Size	7.9213	6.0399	5.1375	4.4639	3.7516
Market to Book	2.7065	2.5666	2.5130	2.5834	3.7400
Debt to Assets	0.2514	0.2419	0.2191	0.1923	0.1627

Table 5: Regressions of next year's Income on Current Income

The table shows coefficients and t-test of Pooled regressions of next year's income on current income and its interactions with dummies for financial constrained firms (top quintile of Whited and Wu 2006 index) and for flexible firms (bottom quintile of Whited and Wu 2006 Index). The regressions include controls for Leverage, Size and Market to Book ratios, and industry and year effects. Standard errors are clustered by firm and year. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. INCOME = Income before extraordinary Items in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INCOME is winsorized at 1%-99% tails. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
$INCOME_t$ (β_1)	+	**0.7070**	**0.7016**	**0.6754**
		41.18	40.65	37.00
$INCOME_t$*CONST (β_2)	+	**0.0775**	**0.0794**	**0.1119**
		3.19	3.26	4.58
$INCOME_t$*FLEX (β_3)	-	-0.0311	-0.0301	-0.0456
		-0.80	-0.77	-1.25
CONST (α_2)		**-0.0225**	**-0.0215**	**-0.0225**
		-12.62	-11.95	-11.44
FLEX (α_3)		**0.0108**	**0.0108**	**0.0079**
		4.32	4.26	2.94
Controls				
$SIZE\ RANK_t$				**0.0087**
				4.03
$MKT\_BOOK\ RANK_t$				**0.0189**
				10.15
$LEVERAGE\ RANK_t$				**-0.0062**
				-4.13
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.4736	0.4751	0.4779
Observations		95,245	95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference ($\beta_2-\beta_3$)
$INCOME_t$	**0.7873**	**0.6754**	**0.6298**	**0.1575**
	47.87	37.00	19.09	4.27

Wald Tests show that for constrained firms the persistence of profitability is 0.787. In contrast, for flexible firms the persistence in profitability is only 0.630. This difference is significantly different from 0 with t-test= 4.27.

Table 6: Regressions of next year's Income on Invested and Distributed Components of Earnings

The table shows coefficients and t-test of Pooled regressions of next year's income on distributed and invested component of earnings their interactions with dummies for financial constrained firms (top quintile of Whited and Wu 2006 index). The regressions include controls for Leverage, Size and Market to Book ratios, and industry and year effects. Standard errors are clustered by firm and year. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. INCOME = Income before extraordinary Items in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
$INVEST_t$ (β_1)	+	**0.6362**	**0.6324**	**0.5925**
		38.88	38.51	34.01
$INVEST_t$*CONST (β_2)	+	**0.0636**	**0.0644**	**0.0973**
		2.62	2.66	3.97
$INVEST_t$*FLEX (β_3)	-	-0.0427	-0.0409	-0.0451
		-0.93	-0.88	-1.07
$DIST_t$ (γ_1)	+	**0.6876**	**0.6820**	**0.6529**
		39.24	38.72	35.59
$DIST_t$*CONST (γ_2)	+	0.0267	0.0282	**0.0601**
		1.13	1.19	2.49
$DIST_t$*FLEX (γ_3)	-	-0.0337	-0.0315	-0.0453
		-0.66	-0.62	-0.97
CONST (α_2)		**-0.0228**	**-0.0221**	**-0.0185**
		-11.04	-10.69	-8.54
FLEX (α_3)		**0.0092**	**0.0095**	-0.0004
		3.21	3.31	-0.13
Controls				
$SIZE\ RANK_t$				**0.0225**
				10.51
$MKT\_BOOK\ RANK_t$				**0.0217**
				10.68
$LEVERAGE\ RANK_t$				**-0.0055**
				-3.45
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.4572	0.4584	0.4628
Observations		95,245	95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	**0.6898**	**0.5925**	**0.5474**	**0.1423**
	37.56	34.01	13.57	3.18
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	**0.7130**	**0.6529**	**0.6075**	**0.1055**
	44.16	35.59	13.66	2.18

Wald Tests show that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.142 (0.690 vs. 0.548), significantly different from 0 with t-test= 3.18. Panel B also shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.105 (0.713 vs. 0.608), significantly different from 0 with t-test= 2.18.

Table 7: Panel Regressions of Accumulated Total Write-downs from years 1 to 4 on Financial Constraint Variables.

The table shows coefficients and t-tests of Panel regressions of accumulated write-downs across time on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: WD = accumulated write-downs defined as the sum of write-downs over average assets. INVEST = change in net operating assets plus change in financial assets in t. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. SIZE RANK = decile rank based on logarithm of total assets. ASSETS IN PLACE = Total Assets minus financial assets minus Goodwill over average total assets. LOSS = 1 if the firm report a loss in t and 0 otherwise. Data is from Compustat for the period 2000-2011. INVEST and ASSETS IN PLACE are winsorized at 1% and 99% tails.

Panel A: Estimation Output

(Dependent Variable = Accumulated Total Write-down deflated by Average Total Assets)

Variable	Pred. Sign	WD (t, t+1)	WD (t, t+2)	WD (t, t+3)	WD (t, t+4)
$INVEST_t$ (β_1)	+	-0.0019	-0.0010	0.0011	0.0006
		-1.73	-0.71	0.65	0.35
$INVEST_t$*CONST (β_2)	-	-0.0041	**-0.0067**	**-0.0058**	-0.0033
		-1.55	-2.19	-1.98	-1.06
$INVEST_t$*FLEX (β_3)	+	0.0018	0.0047	0.0047	**0.0070**
		0.56	1.25	1.36	1.99
CONST (α_2)		0.0007	0.0002	-0.0009	-0.0005
		0.82	0.19	-0.76	-0.42
FLEX (α_3)		0.0003	0.0001	0.0001	0.0003
		0.48	0.16	0.12	0.30
$MARKET\ TO\ BOOK\ RANK_t$	-	**-0.0064**	**-0.0115**	**-0.0123**	**-0.0129**
		-5.68	-7.56	-8.11	-8.70
$SIZE\ RANK_t$	+	0.0021	**0.0128**	**0.0165**	**0.0175**
		1.04	4.36	5.49	5.86
$ASSETS\ IN\ PLACE_t$	+	**0.0049**	**0.0060**	**0.0049**	0.0033
		2.88	2.92	2.30	1.50
$LOSS_t$	+	**0.0009**	0.0011	0.0006	-0.0003
		2.01	1.73	0.78	-0.38
INDUSTRY FIXED EFFECTS		Yes	Yes	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes	yes
R-Square		0.2149	0.4739	0.5820	0.6662
Observations		20,196	20,196	20,196	20,196

Panel B: Wald Test of Difference Coefficients

	Accumulation Period	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference ($\beta_2-\beta_3$)
$INVEST_t$	WD (t, t+1)	**-0.0060**	-0.0019	-0.0001	-0.0059
		-2.33	-1.73	-0.04	-1.56
$INVEST_t$	WD (t, t+2)	**-0.0078**	-0.0010	0.0036	**-0.0114**
		-2.66	-0.71	1.00	-2.55
$INVEST_t$	WD (t, t+3)	-0.0047	0.0011	**0.0059**	**-0.0105**
		-1.61	0.65	1.96	-2.48
$INVEST_t$	WD (t, t+4)	-0.0026	0.0006	**0.0076**	**-0.0103**
		-0.97	0.35	2.30	-2.46

Wald Tests show that for accumulation periods longer than one year, the investment of constrained firms is associated with lower write-downs than the investment of flexible firms.

Table 8: Panel Regressions of Accumulated Goodwill Impairments from years 1 to 4 on Financial Constraint Variables

The table shows coefficients and t-tests of Panel regressions of accumulated goodwill impairments across time on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: GWI = accumulated goodwill impairments defined as goodwill impairments over average assets. INVEST = change in net operating assets plus change in financial assets in t. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. SIZE RANK = decile rank based on logarithm of total assets. GOODWILL = Goodwill over average total assets. LOSS = 1 if the firm report a loss in t and 0 otherwise. Data is from Compustat for the period 2000-2011. INVEST and GOODWILL are winsorized at 1% and 99% tails.

Panel A: Estimation Output

(Dependent Variable = Accumulated Total Write-down deflated by Average Total Assets)

Variable	Pred. Sign	GWI (t, t+1)	GWI (t, t+2)	GWI (t, t+3)	GWI (t, t+4)
$INVEST_t(\beta_1)$	+	0.0042	**0.0146**	**0.0194**	**0.0199**
		1.09	2.27	2.37	2.40
$INVEST_t$*CONST (β_2)	-	-0.0047	-0.0110	**-0.0156**	**-0.0162**
		-0.77	-1.43	-1.98	-1.96
$INVEST_t$*FLEX (β_3)	+	0.0022	-0.0019	0.0014	0.0006
		0.31	-0.21	0.14	0.06
CONST (α_2)		-0.0026	-0.0014	-0.0019	0.0000
		-1.67	-0.65	-0.70	-0.01
FLEX (α_3)		0.0003	-0.0022	-0.0026	-0.0017
		0.17	-0.93	-0.90	-0.55
MARKET TO BOOK $RANK_t$	-	**-0.0256**	**-0.0354**	**-0.0381**	**-0.0387**
		-7.42	-7.78	-7.78	-7.86
SIZE $RANK_t$	+	**0.0122**	**0.0267**	**0.0323**	**0.0326**
		1.94	3.04	3.33	3.28
$GOODWILL_t$	+	**0.0381**	**0.0507**	**0.0643**	**0.0741**
		4.85	4.52	4.50	4.70
$LOSS_t$	+	0.0023	0.0016	-0.0011	-0.0033
		1.85	0.89	-0.60	-1.66
INDUSTRY FIXED EFFECTS		Yes	Yes	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes	yes
R-Square		0.2720	0.4412	0.5091	0.5883
Observations		20,196	20,196	20,196	20,196

Panel B: Wald Test of Difference Coefficients

	Acccumulation Period	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference ($\beta_2-\beta_3$)
$INVEST_t$	GWI (t, t+1)	-0.0004	0.0042	0.0064	-0.0069
		-0.10	1.09	1.25	-0.90
$INVEST_t$	GWI (t, t+2)	0.0036	**0.0146**	0.0127	-0.0091
		0.85	2.27	1.75	-1.28
$INVEST_t$	GWI (t, t+3)	0.0038	**0.0194**	**0.0208**	**-0.0170**
		0.82	2.37	2.46	-2.02
$INVEST_t$	GWI (t, t+4)	0.0037	**0.0199**	**0.0206**	**-0.0168**
		1.01	2.40	2.44	-1.98

Wald Tests show that for accumulation periods larger than two years the investment of constrained firms is associated with significant lower goodwill impairments than the investment of flexible firms.

Table 9: Panel Regressions of next year's Market Adjusted Returns on Investment

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and dummies for financial constrained firms (top quintile of Whited and Wu 2006 index) and for flexible firms (bottom quintile of Whited and Wu 2006 Index). The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. INVEST RANK = decile rank based on the change in net operating assets plus change in cash holdings over total average assets. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Variable	Pred. Sign	Reg. 1	Reg. 2
INVEST $RANK_t$ (β_1)	-	**-0.0354**	**-0.0352**
		-5.86	-4.79
INVEST $RANK_t$*CONST (β_2)	+		0.0202
			1.33
INVEST $RANK_t$*FLEX (β_3)	-		**-0.0278**
			-2.15
CONST (α_2)		**0.0202**	0.0082
		2.65	0.73
FLEX (α_3)		0.0001	0.0127
		0.02	1.32
Controls			
SIZE $RANK_t$		**-0.0780**	**-0.0780**
		-6.94	-6.96
MKT_BOOK $RANK_t$		**-0.0372**	**-0.0376**
		-3.89	-3.92
LEVERAGE RANKt		**-0.0613**	**-0.0614**
		-6.83	-6.84
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1417	0.1485
Observations		95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference ($\beta_2-\beta_3$)
$INVEST_t$	-0.0151	**-0.0352**	**-0.0631**	**0.0480**
	-1.08	-4.79	-5.75	2.75

Wald Tests show that the investment of constrained firms is associated with higher abnormal returns than the investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of investment is 4.8 percentage points higher than the annual return of financially flexible firms.

Table 10: Future Abnormal Returns for Portfolios of Firm-Years Formed on Quintile Rankings of Investment (INVEST) and Financial Constraint Index (WW)

The table shows next-year stock returns, adjusted by size and book to market ratio. Observations are ranked each year into 25 equal portfolios based on Investment (INVEST) and Financial Constraints Index (WW). Abnormal returns are equally weighted. Data is from Compustat and CRSP for the period 1962-2011. Returns that are significantly different from 0 at the 5% level are presented in bold. The bottom row represents the return difference between financially constrained and flexible firms for each quintile of investment (INVEST).

		Investment				
		1	2	3	4	5
Financial Constraints	FLEX	**1.96%**	0.87%	-0.14%	**-1.25%**	**-3.63%**
	2	-0.60%	1.06%	**1.33%**	-0.06%	**-2.70%**
	3	0.10%	0.30%	0.13%	-0.57%	**-1.92%**
	4	1.05%	0.47%	0.56%	0.83%	**-2.33%**
	CONS	**1.60%**	0.01%	0.51%	0.62%	0.19%
	CONS - FLEX	-0.36%	-0.86%	0.65%	**1.87%**	**3.81%**

Table 11: Regressions of next year's Income on Distributed, NOA Investment and FA Investment Components of Earnings

The table shows coefficients and t-test of regressions of next year's income on distributed, NOA investment and FA investment and their interactions with dummies for financial constrained firms and flexible firms. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW index and 0 otherwise. INCOME = Income before extraordinary Items in t+1. ΔNOA = change in net operating assets in t. ΔFA = change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
Δ NOA_t (β_1)	+	**0.6140**	**0.6091**	**0.5735**
		37.95	37.52	33.35
Δ NOA_t*CONST (β_2)	+	0.0430	0.0433	**0.0718**
		1.82	1.83	2.99
Δ NOA_t*FLEX (β_3)	-	-0.0302	-0.0274	-0.0317
		-0.65	-0.59	-0.75
Δ FA_t (γ_1)	+	**0.6895**	**0.6877**	**0.6477**
		38.38	38.08	33.35
Δ FA_t*CONST (γ_2)	+	**0.0804**	**0.0802**	**0.1140**
		2.92	2.91	4.09
Δ FA_t*FLEX (γ_3)	-	-0.0494	-0.0451	-0.0499
		-1.13	-1.02	-1.22
$DIST_t$ (δ_1)	+	**0.6862**	**0.6804**	**0.6552**
		39.08	38.54	35.41
$DIST_t$*CONST (δ_2)	+	0.0417	0.0431	**0.0715**
		1.74	1.80	2.93
$DIST_t$*FLEX (δ_3)	-	-0.0345	-0.0315	-0.0450
		-0.69	-0.62	-0.96
CONST (α_2)		**-0.0206**	**-0.0198**	**-0.0160**
		-10.37	-9.93	-7.62
FLEX (α_3)		**0.0085**	**0.0088**	-0.0010
		3.02	3.08	-0.33
Controls				
$SIZE\ RANK_t$				**0.0212**
				9.91
$MKT\_BOOK\ RANK_t$				**0.0224**
				11.13
$LEVERAGE\ RANK_t$				-0.0008
				-0.50
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.4621	0.4636	0.4678
Observations		95,245	95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
Δ NOA_t	**0.6454**	**0.5735**	**0.5418**	**0.1035**
	36.83	33.35	13.35	2.36
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
Δ FA_t	**0.7617**	**0.6477**	**0.5978**	**0.1639**
	35.18	33.35	15.76	3.81
	$\delta_1+\delta_2$	δ_1	$\delta_1+\delta_3$	$\delta_2-\delta_3$
$DIST_t$	**0.7267**	**0.6552**	**0.6102**	**0.1165**
	44.31	35.41	13.84	2.48

Wald Tests show that the NOA investment of constrained firms is associated with higher persistence of profitability than the NOA investment of flexible firms. The difference in persistence between both groups is 0.103 (0.645 vs. 0.542), significantly different from 0 with t-test= 2.36. Panel B also shows that the FA investment of constrained firms is associated with higher persistence of profitability than the FA investment of flexible firms. The difference in persistence between both groups is 0.164 (0.762 vs. 0.598), significantly different from 0 with t-test= 3.81.

Table 12: Panel Regressions of next year's Market Adjusted Returns on NOA Investment and FA Investment

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. ΔNOA RANK= decile rank based on the change in net operating assets over total average assets. ΔFA RANK= decile rank based on the change in financial assets over total average assets. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Variable	Pred. Sign	Reg. 1	Reg. 2
Δ NOA $RANK_t$ (β_1)	-	**-0.0546**	**-0.0527**
		-9.13	-7.09
Δ NOA $RANK_t$*CONST (β_2)	+		**0.0192**
			2.21
Δ NOA $RANK_t$*FLEX (β_3)	-		-0.0136
			-1.05
Δ FA $RANK_t$ (γ_1)		**0.0247**	**0.0306**
		4.58	4.55
Δ FA $RANK_t$*CONST (γ_2)	+		0.0063
			0.45
Δ FA $RANK_t$*FLEX (γ_3)	-		**-0.0283**
			-2.22
CONST (α_2)		**0.0174**	0.0185
		2.29	1.27
FLEX (α_3)		0.0011	0.0212
		0.14	1.68
Controls			
SIZE $RANK_t$		**-0.0781**	**-0.0782**
		-7.12	-7.13
MKT_BOOK $RANK_t$		**-0.0387**	**-0.0390**
		-4.05	-4.08
LEVERAGE RANKt		**-0.0554**	**-0.0556**
		-6.18	-6.19
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1431	0.1487
Observations		95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
ΔNOA_t	**-0.0335**	**-0.0527**	**-0.0663**	**0.0328**
	-2.28	-7.09	-6.14	1.98
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
ΔFA_t	**0.0369**	**0.0306**	0.0023	**0.0345**
	3.78	4.55	0.21	2.10

Wald Tests show that the NOA investment of constrained firms is associated with higher abnormal returns than the investment in NOA investment of flexible firms. The annual return of financially constrained firms in the top decile of NOA investment is 3.28 percentage points higher than the annual return of financially flexible firms. Panel B also shows that the FA investment of constrained firms is associated with higher abnormal returns than the FA investment of flexible firms. In particular, the annual return of financially constrained firms in the top decile of financial asset investment is 3.45 percentage points higher than the annual return of financially flexible firms.

Table 13: Regressions of next year's Income on Invested and Distributed Components of Earnings (Sub-Sample: Positive Investment)

The table shows coefficients and t-test of Pooled regressions of next year's income on distributed and invested component of earnings and their interactions with dummies for financial constrained firms. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW 2006 and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW 2006 index and 0 otherwise. INCOME = Income before extraordinary Items in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
$INVEST_t$ (β_1)	+	**0.6390**	**0.6407**	**0.5786**
		37.13	36.98	31.07
$INVEST_t$*CONST (β_2)	+	**0.0994**	**0.0974**	**0.0878**
		3.01	2.94	2.46
$INVEST_t$*FLEX (β_3)	-	-0.0371	-0.0374	-0.0132
		-1.35	-1.35	-0.67
$DIST_t$ (γ_1)	+	**0.7048**	**0.7024**	**0.6537**
		40.25	39.80	34.74
$DIST_t$*CONST (γ_2)	+	**0.0937**	**0.0919**	0.0615
		2.46	2.40	1.66
$DIST_t$*FLEX (γ_3)	-	-0.0444	-0.0429	0.0014
		-1.77	-1.70	0.05
CONST (α_2)		**-0.0102**	**-0.0087**	**-0.0069**
		-3.64	-3.11	-2.43
FLEX (α_3)		-0.0020	-0.0023	**-0.0105**
		-0.84	-0.94	-4.08
Controls				
$SIZE\ RANK_t$				**0.0226**
				10.07
$MKT\_BOOK\ RANK_t$				**0.0262**
				13.68
$LEVERAGE\ RANK_t$				**-0.0078**
				-5.03
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.4368	0.4388	0.4456
Observations		73,604	73,604	73,604

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	**0.6663**	**0.5786**	**0.5654**	**0.1010**
	27.09	31.07	22.54	3.05
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	**0.7151**	**0.6537**	**0.6550**	**0.0601**
	36.33	34.74	20.37	2.09

Wald Tests indicate that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.10 (0.666 vs. 0.565), significantly different from 0 with t-test= 3.05. Panel B also shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. The difference in persistence between both groups is 0.060 (0.715 vs. 0.655), significantly different from 0 with t-test= 2.09.

Table 14: Panel Regressions of Cumulated Total Write-downs from years 1 to 4 on Financial Constraint Variables (Sub-Sample: Positive Investment)

The table shows coefficients and t-tests of Panel regressions of accumulated write-downs across time on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: WD = accumulated write-downs defined as the sum of write-downs over average assets. INVEST = change in net operating assets plus change in financial assets in t. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. SIZE RANK = decile rank based on logarithm of total assets. ASSETS IN PLACE = Total Assets minus financial assets minus Goodwill over average total assets. LOSS = 1 if the firm report a loss in t and 0 otherwise. Data is from Compustat for the period 2000-2011. INVEST and ASSETS IN PLACE are winsorized at 1% and 99% tails.

Panel A: Estimation Output

(Dependent Variable = Accumulated Total Write-down deflated by Average Total Assets)

Variable	Pred. Sign	WD (t, t+1)	WD (t, t+2)	WD (t, t+3)	WD (t, t+4)
$INVEST_t$ (β_1)	+	-0.0001	-0.0002	0.0022	0.0015
		-0.04	-0.17	1.34	0.78
$INVEST_t$*CONST (β_2)	-	-0.0008	**-0.0062**	**-0.0052**	-0.0027
		-0.84	-2.12	-1.97	-0.95
$INVEST_t$*FLEX (β_3)	+	0.0007	0.0034	0.0040	0.0066
		0.62	0.74	1.18	1.93
CONST (α_2)		-0.0002	0.0005	-0.0001	0.0004
		-0.41	0.55	-0.11	0.28
FLEX (α_3)		-0.0002	-0.0004	-0.0002	0.0003
		-0.54	-0.55	-0.21	0.26
MARKET TO BOOK $RANK_t$	-	**-0.0015**	**-0.0055**	**-0.0083**	**-0.0089**
		-2.41	-4.84	-5.50	-5.65
SIZE $RANK_t$	+	**0.0025**	**0.0122**	**0.0188**	**0.0190**
		2.90	6.27	6.96	6.46
ASSETS IN $PLACE_t$	+	**0.0017**	0.0021	0.0027	0.0025
		2.43	1.42	1.27	1.15
$LOSS_t$	+	-0.0002	-0.0008	-0.0017	**-0.0027**
		-0.48	-1.23	-1.87	-2.81
INDUSTRY FIXED EFFECTS		Yes	Yes	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes	yes
R-Square		0.0819	0.4646	0.5718	0.6596
Observations		15,401	15,401	15,401	15,401

Panel B: Wald Test of Difference Coefficients

	Accumulation Period	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference ($\beta_2-\beta_3$)
$INVEST_t$	WD (t, t+1)	-0.0010	-0.0001	0.0006	-0.0016
		-0.88	-0.84	0.34	-1.16
$INVEST_t$	WD (t, t+2)	**-0.0064**	-0.0002	0.0032	**-0.0096**
		-2.16	-0.17	0.70	-2.33
$INVEST_t$	WD (t, t+3)	-0.0030	0.0022	**0.0062**	**-0.0093**
		-0.61	1.34	1.96	-2.28
$INVEST_t$	WD (t, t+4)	-0.0012	0.0015	**0.0081**	**-0.0093**
		-0.37	0.78	2.30	-2.23

Wald Tests indicate that for accumulation periods longer than 1 year, the investment of constrained firms is associated with lower write-downs than the investment of flexible firms.

Table 15: Panel Regressions of Cumulated Goodwill Impairments from years 1 to 4 on Financial Constraint Variables (Sub-Sample: Positive Investment)

The table shows coefficients and t-tests of Panel regressions of accumulated goodwill impairments across time on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: GWI = accumulated goodwill impairments defined as goodwill impairments over average assets. INVEST = change in net operating assets plus change in financial assets in t. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. SIZE RANK = decile rank based on logarithm of total assets. GOODWILL = Goodwill over average total assets. LOSS = 1 if the firm report a loss in t and 0 otherwise. Data is from Compustat for the period 2000-2011. INVEST and GOODWILL are winsorized at 1% and 99% tails.

Panel A: Estimation Output

(Dependent Variable = Accumulated Total Write-down deflated by Average Total Assets)

Variable	Pred. Sign	GWI (t, t+1)	GWI (t, t+2)	GWI (t, t+3)	GWI (t, t+4)
$INVEST_t(\beta_1)$	+	-0.0023	0.0044	0.0053	0.0031
		-1.82	1.16	0.98	0.54
$INVEST_t$*CONST (β_2)	-	-0.0013	**-0.0119**	-0.0075	-0.0059
		-0.67	-2.28	-1.55	-1.26
$INVEST_t$*FLEX (β_3)	+	0.0014	-0.0021	0.0053	0.0054
		0.87	-0.37	0.62	0.53
CONST (α_2)		0.0013	-0.0019	-0.0047	-0.0039
		1.04	-0.84	-1.70	-1.33
FLEX (α_3)		0.0001	-0.0001	-0.0001	0.0004
		0.22	-0.03	-0.01	0.20
MARKET TO BOOK $RANK_t$	-	**-0.0028**	**-0.0143**	**-0.0194**	**-0.0230**
		-2.06	-5.21	-5.76	-6.40
SIZE $RANK_t$	+	0.0071	**0.0203**	**0.0282**	**0.0277**
		1.23	2.56	3.14	2.94
$GOODWILL_t$	+	0.0013	**0.0142**	**0.0285**	**0.0441**
		0.67	2.42	3.24	4.21
$LOSS_t$	+	-0.0007	**-0.0030**	**-0.0064**	**-0.0079**
		-1.13	-1.97	-3.34	-3.89
INDUSTRY FIXED EFFECTS		Yes	Yes	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes	yes
R-Square		0.2498	0.3939	0.4943	0.5762
Observations		15,401	15,401	15,401	15,401

Panel B: Wald Test of Difference Coefficients

	Acccumulation Period	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference ($\beta_2-\beta_3$)
$INVEST_t$	GWI (t, t+1)	**-0.0036**	-0.0023	-0.0009	-0.0027
		-2.01	-1.82	-0.30	-1.67
$INVEST_t$	GWI (t, t+2)	-0.0075	0.0044	0.0022	**-0.0098**
		-1.63	1.16	0.41	-2.01
$INVEST_t$	GWI (t, t+3)	-0.0022	0.0053	0.0106	**-0.0128**
		0.32	0.98	1.74	-1.97
$INVEST_t$	GWI (t, t+4)	-0.0028	0.0031	0.0085	-0.0113
		0.42	0.54	1.43	-1.81

Wald Tests show that for accumulation periods of 2 and 3 years the investment of constrained firms is associated with significant lower goodwill impairments than the investment of flexible firms.

Table 16: Panel Regressions of next year's Market Adjusted Returns on Investment (Sub-Sample: Positive Investment)

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW index and 0 otherwise. INVEST = decile rank based on the change in net operating assets plus change in cash holdings over total average assets. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Variable	Pred. Sign	Reg. 1	Reg. 1
INVEST $RANK_t$ (β_1)	-	**-0.0543**	**-0.0657**
		-6.30	-6.23
INVEST $RANK_t$*CONST (β_2)	+		**0.0513**
			2.22
INVEST $RANK_t$*FLEX (β_3)	-		0.0075
			0.42
CONST (α_2)		**0.0214**	-0.0144
		2.43	-0.81
FLEX (α_3)		-0.0087	-0.0135
		-1.03	-1.06
Controls			
SIZE $RANK_t$		**-0.0810**	**-0.0810**
		-7.37	-7.36
MKT_BOOK $RANK_t$		**-0.0224**	**-0.0228**
		-1.96	-2.00
LEVERAGE RANKt		**-0.0674**	**-0.0670**
		-6.53	-6.49
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1496	0.1495
Observations		73,604	73,604

Panel B: Wald Test of Difference Coefficients

	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference Cons-Flex ($\beta_2-\beta_3$)
$INVEST_t$	-0.0144	**-0.0657**	**-0.0582**	**0.0438**
	-0.51	-6.23	4.54	2.45

Wald Tests show that the investment of constrained firms is associated with higher abnormal returns than the investment of flexible firms. The return of financially constrained firms in the top decile of investment is 4.38 percentage points higher than the return of financially flexible firms.

Table 17: Regressions of next year's Income before Extraordinary Items, Interest and Taxes on Invested and Distributed Components of Earnings

The table shows coefficients and t-test of Pooled regressions of next year's income before extraordinary items, interest and taxes on distributed and invested component of earnings and their interactions with dummies for financial constrained firms and flexible firms. Standard errors are clustered by firm and year. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW index and 0 otherwise. INCOME = Income before extraordinary Items, interest and taxes in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails.

Panel A: Estimation Output

(Dependent Variable = Income before interest and taxes deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
$INVEST_t$ (β_1)	+	**0.6696**	**0.6649**	**0.6003**
		38.68	38.40	33.91
$INVEST_t$*CONST (β_2)	+	0.0409	**0.0484**	**0.1005**
		1.62	1.96	4.00
$INVEST_t$*FLEX (β_3)	-	-0.0349	-0.0370	-0.0451
		-0.68	-0.73	-1.05
$DIST_t$ (γ_1)	+	**0.7303**	**0.7236**	**0.6631**
		39.26	38.84	35.55
$DIST_t$*CONST (γ_2)	+	-0.0020	0.0027	**0.0630**
		-0.08	0.11	2.54
$DIST_t$*FLEX (γ_3)	-	-0.0259	-0.0286	-0.0463
		-0.46	-0.51	-0.97
CONST (α_2)		**-0.0182**	**-0.0191**	**-0.0178**
		-8.52	-8.94	-8.07
FLEX (α_3)		**0.0067**	**0.0081**	-0.0007
		2.12	2.58	-0.24
Controls				
$SIZE\ RANK_t$				**0.0282**
				12.68
$MKT\_BOOK\ RANK_t$				**0.0185**
				8.90
$LEVERAGE\ RANK_t$				**-0.0442**
				-27.01
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.4529	0.4545	0.4677
Observations		94,875	94,875	94,875

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	**0.7008**	**0.6003**	**0.5552**	**0.1456**
	36.93	33.91	13.62	3.27
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	**0.7260**	**0.6631**	**0.6168**	**0.1093**
	43.09	35.55	13.75	2.28

Wald Tests indicate that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. The difference in persistence between both groups is 0.146 (0.701 vs. 0.555), significantly different from 0 with t-test= 3.27. Panel B also shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. The difference in persistence between both groups is 0.109 (0.726 vs. 0.617), significantly different from 0 with t-test= 2.28.

Table 18: Regressions of next year's Operating Income on Invested and Distributed Components of Earnings

The table shows coefficients and t-test of Pooled regressions of next year's operating income on distributed and invested component of earnings and their interactions with dummies for financial constrained firms and flexible firms. Standard errors are clustered by firm and year. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW 2006 index and 0 otherwise. INCOME = operating income in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = Operating Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
$INVEST_t$ (β_1)	+	**0.7056**	**0.6989**	**0.6344**
		39.74	39.55	34.79
$INVEST_t$*CONST (β_2)	+	**0.0508**	**0.0531**	**0.1071**
		2.04	2.14	4.32
$INVEST_t$*FLEX (β_3)	-	-0.0804	-0.0810	-0.0918
		-1.27	-1.29	-1.68
$DIST_t$ (γ_1)	+	**0.7310**	**0.7225**	**0.6810**
		38.95	38.60	35.90
$DIST_t$*CONST (γ_2)	+	0.0149	0.0182	**0.0677**
		0.62	0.76	2.83
$DIST_t$*FLEX (γ_3)	-	-0.0633	-0.0651	-0.0937
		-0.95	-0.99	-1.63
CONST (α_2)		**-0.0329**	**-0.0330**	**-0.0295**
		-14.95	-15.08	-13.16
FLEX (α_3)		**0.0091**	**0.0120**	-0.0022
		2.32	3.08	-0.63
Controls				
$SIZE\ RANK_t$				**0.0282**
				11.21
$MKT\_BOOK\ RANK_t$				**0.0501**
				21.51
$LEVERAGE\ RANK_t$				**0.0065**
				3.37
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.5081	0.5137	0.5293
Observations		94,875	94,875	94,875

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	**0.7415**	**0.6344**	**0.5426**	**0.1989**
	40.39	34.79	9.98	3.49
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	**0.7487**	**0.6810**	**0.5873**	**0.1614**
	48.06	35.90	10.28	2.73

Wald Tests show that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.199 (0.742 vs. 0.543), significantly different from 0 with t-test= 3.49. Panel B also shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. The difference in persistence between both groups is 0.161 (0.749 vs. 0.587), significantly different from 0 with t-test= 2.73.

Table 19: Regressions of next year's Income on Invested and Distributed Components of Earnings (Sample: Bond Ratings)

The table shows coefficients and t-test of Pooled regressions of next year's income on distributed and invested component of earnings their interactions with a dummy variable for financial flexible firms (existence of bond ratings). The regressions include controls for Leverage, Size and Market to Book ratios, and industry and year effects. Standard errors are clustered by firm and year. The variables are defined as: FLEX = indicator variable that takes the value of 1 if the firm has a Bond Rating and 0 otherwise. The firm is considered constrained if does not have a Bond rating in year t. INCOME = Income before extraordinary Items in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails. Data is from Compustat for the period 1985-2011.

Panel A: Estimation Output

(Dependent Variable = Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2	Reg. 3
$INVEST_t$ (β_1)	+	**0.6619**	**0.6560**	**0.6346**
		47.14	46.45	43.96
$INVEST_t$*FLEX (β_2)	-	**-0.1087**	**-0.1059**	**-0.1294**
		-2.89	-2.80	-3.73
$DIST_t$ (γ_1)	+	**0.7038**	**0.6950**	**0.6830**
		54.29	52.91	51.61
$DIST_t$*FLEX (γ_2)	-	**-0.1050**	**-0.1017**	**-0.1344**
		-2.69	-2.58	-3.69
C (α_1)		**-0.0005**	**0.0197**	**-0.0161**
		-0.44	4.42	-3.70
FLEX (α_2)		**0.0164**	**0.0148**	-0.0010
		8.35	7.45	-0.51
Controls				
$SIZE\ RANK_t$				**-0.0197**
				-1.41
$MKT\_BOOK\ RANK_t$				**0.0188**
				0.87
$LEVERAGE\ RANK_t$				**0.0061**
				1.28
INDUSTRY FIXED EFFECTS		No	Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes	yes
R-Square		0.4372	0.4395	0.4464
Observations		64,933	64,933	64,933

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Flexible Firms	Difference Cons-Flex
	β_1	$\beta_1+\beta_2$	β_2
$INVEST_t$	**0.6346**	**0.5052**	**0.1294**
	43.96	15.46	3.73
	γ_1	$\gamma_1+\gamma_2$	γ_2
$DIST_t$	**0.6830**	**0.5487**	**0.1344**
	51.61	15.80	3.69

Wald Tests indicate that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. In particular, the difference in persistence between both groups is 0.129 (0.634 vs. 0.505), significantly different from 0 with t-test= 3.73. Table 19 Panel B shows that the net distribution of constrained firms is associated with higher persistence of profitability than the net distribution of flexible firms. In particular, the difference in persistence between both groups is 0.134 (0.683 vs. 0.549), significantly different from 0 with t-test= 3.69.

Table 20: Panel Regressions of next year's Market Adjusted Returns on Investment (Sample: Bond Ratings)

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and its interaction with a dummy variable for financial flexible firms (existence of bond ratings). The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. FLEX = indicator variable that takes the value of 1 if the firm has a Bond Rating and 0 otherwise. The firm is considered constrained if does not have a Bond rating in year t. INVEST RANK = decile rank based on the change in net operating assets plus change in cash holdings over total average assets. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. Data is from Compustat for the period 1985-2011.

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Panel A: Estimation Output

Variable	Pred. Sign	Reg. 1	Reg. 2
INVEST RANK$_t$ (β_1)	-	**-0.0205**	-0.0170
		-2.64	-1.80
INVEST RANK$_t$*FLEX (β_2)	-		**-0.0278**
			-1.98
FLEX (α_1)		**-0.0217**	0.0069
		2.05	0.59
Controls			
SIZE RANK$_t$		**-0.0930**	**-0.0930**
		-7.31	-7.32
MKT_BOOK RANK$_t$		**-0.0343**	**-0.0349**
		-2.82	-2.86
LEVERAGE RANKt		**-0.0655**	**-0.0653**
		-5.37	-5.35
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1417	0.1477
Observations		64,933	64,933

Panel B: Wald Test of Difference Coefficients

	Constrained Firms (β_1)	Flexible Firms ($\beta_1+\beta_2$)	Difference Cons-Flex (β_2)
$INVEST_t$	-0.0170	**-0.0448**	**0.0278**
	-1.80	-3.37	1.98

Wald Tests indicate that the investment of constrained firms is associated with higher future abnormal returns than the investment of flexible firms. The annual return of financially constrained firms in the top decile of investment is 2.78 percentage points higher than the annual return of financially flexible firms.

Table 21: Regressions of next year's Income on Invested and Distributed Components of Earnings (Firm Age as a Control Variable)

The table shows coefficients and t-tests of Pooled regressions of next year's income on distributed and invested component of earnings and their interactions with dummies for financial constrained firms and flexible firms. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW index and 0 otherwise. INCOME = Income before extraordinary Items in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. AGE RANK = decile rank based on firm age. INVEST and DIST are winsorized at 1% and 99% tails. Standard errors are clustered by firm and year. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2
$INVEST_t$ (β_1)	+	**0.5925**	**0.5935**
		34.01	34.15
$INVEST_t$*CONST (β_2)	+	**0.0973**	**0.0973**
		3.97	3.97
$INVEST_t$*FLEX (β_3)	-	-0.0451	-0.0495
		-1.07	-1.19
$DIST_t$ (γ_1)	+	**0.6529**	**0.6485**
		35.59	35.34
$DIST_t$*CONST (γ_2)	+	**0.0601**	**0.0626**
		2.49	2.59
$DIST_t$*FLEX (γ_3)	-	-0.0453	-0.0493
		-0.97	-1.06
CONST (α_2)		**-0.0185**	**-0.0177**
		-8.54	-8.21
FLEX (α_3)		-0.0004	-0.0024
		-0.13	-0.84
Controls			
SIZE $RANK_t$		**0.0225**	**0.0189**
		10.51	8.75
MKT_BOOK $RANK_t$		**0.0217**	**0.0247**
		10.68	12.11
LEVERAGE $RANK_t$		**-0.0055**	**-0.0063**
		-3.45	-3.92
AGE $RANK_t$			**0.0173**
			12.22
INDUSTRY FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		yes	yes
R-Square		0.4628	0.4637
Observations		95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	**0.6908**	**0.5935**	**0.5440**	**0.1468**
	37.67	34.15	13.76	3.39
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	**0.7110**	**0.6485**	**0.5992**	**0.1118**
	44.11	35.34	13.72	2.40

Wald Tests show that the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. The difference in persistence between both groups is 0.147 (0.691 vs. 0.544), significantly different from 0 with t-test= 3.39. Panel B also shows that the distribution of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. The difference in persistence between both groups is 0.112 (0.711 vs. 0.599), significantly different from 0 with t-test= 2.4.

Table 22: Panel Regressions of next year's Market Adjusted Returns on Investment (Firm Age as a Control Variable)

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. INVEST RANK = decile rank based on the change in net operating assets plus change in cash holdings over total average assets. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. AGE RANK = decile rank based on firm age. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Variable	Pred. Sign	Reg. 1	Reg. 2
INVEST RANK$_t$ (β_1)	-	**-0.0352**	**-0.0357**
		-4.79	-4.85
INVEST RANK$_t$*CONST (β_2)	+	0.0202	0.0201
		1.33	1.32
INVEST RANK$_t$*FLEX (β_3)	-	**-0.0278**	**-0.0272**
		-2.15	-2.10
CONST (α_2)		0.0082	0.0080
		0.73	0.71
FLEX (α_3)		0.0127	0.0123
		1.32	1.28
Controls			
SIZE RANK$_t$		**-0.0780**	**-0.0779**
		-6.96	-6.55
MKT_BOOK RANK$_t$		**-0.0376**	**-0.0386**
		-3.92	-3.94
LEVERAGE RANKt		**-0.0614**	**-0.0614**
		-6.84	-6.84
AGE RANK$_t$			-0.0106
			-0.54
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1485	0.1485
Observations		95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms ($\beta_1+\beta_2$)	Quintiles 2-4 Firms (β_1)	Flexible Firms ($\beta_1+\beta_3$)	Difference Cons-Flex($\beta_2-\beta_3$)
$INVEST_t$	-0.0156	**-0.0357**	**-0.0629**	**0.0473**
	-1.13	-4.85	-5.68	2.66

Wald Tests indicate that the investment of constrained firms is associated with higher future abnormal returns than the investment of flexible firms. The annual return of financially constrained firms in the top decile of investment is 4.73 percentage points higher than the annual return of financially flexible firms, significantly different from 0 with t-test= 2.66.

Table 23: Panel Regressions of next year's Market Adjusted Returns on Capitalized Investment and R&D Investment

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and dummies for financial constrained firms and for flexible firms. The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW index and 0 otherwise. INVEST = decile rank based on the change in net operating assets plus change in cash holdings over total average assets. R&D RANK = decile rank based on R&D expense. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Variable	Pred. Sign	Reg. 1	Reg. 2
INVEST $RANK_t$ (β_1)	-	**-0.0353**	**-0.0350**
		-5.84	-4.76
INVEST $RANK_t$*CONST (β_2)	+		0.0203
			1.33
INVEST $RANK_t$*FLEX (β_3)	-		**-0.0279**
			-2.16
R&D $RANK_t$ (γ_1)		**0.0255**	**0.0388**
		2.29	3.06
R&D $RANK_t$*CONST (γ_2)	+		-0.0097
			-0.59
R&D $RANK_t$*FLEX (γ_3)	-		**-0.0459**
			-3.10
CONST (α_2)		**0.0202**	0.0122
		2.65	0.95
FLEX (α_3)		0.0001	**0.0274**
		0.01	2.56
Controls			
SIZE $RANK_t$		**-0.0780**	**-0.0782**
		-6.94	-6.96
MKT_BOOK $RANK_t$		**-0.0375**	**-0.0375**
		-3.92	-3.91
LEVERAGE $RANK_t$		**-0.0611**	**-0.0612**
		-6.81	-6.82
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1439	0.1507
Observations		95,245	95,245

Panel B: Wald Test of Difference Coefficients

	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
	$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	-0.0147	**-0.0350**	**-0.0629**	**0.0482**
	-1.06	-4.76	-5.74	2.76
	$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$R\&D_t$	0.0292	**0.0388**	-0.0070	**0.0362**
	-1.89	3.06	-0.50	2.03

Wald Tests indicates that the R&D investment of constrained firms is associated with future higher abnormal returns than the R&D investment of flexible firms. The annual return of financially constrained firms in the highest level of R&D investment is 3.6 percentage points higher than the annual return of financially flexible firms. Panel B also shows that the capitalized investment (INVEST) of constrained firms is associated with higher future abnormal returns than the capitalized investment of flexible firms. The annual return of financially constrained firms in the highest level of capitalized investment (INVEST) is 4.8 percentage points higher than the annual return of financially flexible firms.

Table 24: Regressions of next year's Income on Invested and Distributed Components of Earnings (Sample period)

The table shows coefficients and t-test of Pooled regressions of next year's income on distributed and invested component of earnings their interactions with dummies for financial constrained firms. The regressions include controls for Leverage, Size and Market to Book ratios, and industry and year effects. Standard errors are clustered by firm and year. The variables are defined as: CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of WW 2006 and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of WW 2006 index and 0 otherwise. INCOME = Income before extraordinary Items in t+1. INVEST = invested component of earnings defined as change in net operating assets plus change in financial assets in t. DIST: distributed component of earnings defined as Net capital distributions to debt and equity holders in t. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. INVEST and DIST are winsorized at 1% and 99% tails. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = Income deflated by average total assets)

Variable	Pred. Sign	Reg. 1	Reg. 2
$INVEST_t$ (β_1)	+	**0.6253**	**0.5812**
		35.41	28.63
$INVEST_t$*CONST (β_2)	+	**0.0889**	**0.0894**
		3.07	3.06
$INVEST_t$*FLEX (β_3)	-	-0.0141	-0.0499
		-0.59	-1.01
$DIST_t$ (γ_1)	+	**0.6748**	**0.6401**
		36.96	30.44
$DIST_t$*CONST (γ_2)	+	0.0499	0.0486
		1.76	1.75
$DIST_t$*FLEX (γ_3)	-	-0.0144	-0.0463
		-0.58	-0.86
CONST (α_2)		**-0.0190**	**-0.0203**
		-7.39	-6.96
FLEX (α_3)		-0.0016	-0.0010
		-0.85	-0.31
Controls			
$SIZE\ RANK_t$		**0.0184**	**0.0316**
		8.85	9.30
$MKT\_BOOK\ RANK_t$		**0.0140**	**0.0221**
		6.84	7.68
$LEVERAGE\ RANK_t$		**-0.0096**	0.0013
		-5.70	0.60
INDUSTRY FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	yes
R-Square		0.4593	0.4513
Observations		41,685	53,321

Panel B: Wald Test of Difference Coefficients

	Period	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
		$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	1962-1989	**0.7142**	**0.6253**	**0.6112**	**0.1029**
		28.87	35.41	28.54	3.30
		$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	1990-2011	**0.6706**	**0.5812**	**0.5313**	**0.1393**
		30.70	28.63	11.56	2.74

	Period	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
		$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	1962-1989	**0.7247**	**0.6748**	**0.6604**	**0.0643**
		31.59	36.96	30.14	2.11
		$\gamma_1+\gamma_2$	γ_1	$\gamma_1+\gamma_3$	$\gamma_2-\gamma_3$
$DIST_t$	1990-2011	**0.6887**	**0.6401**	**0.5938**	0.0949
		37.68	30.44	11.83	1.87

Wald Tests indicates that for both sample periods the investment of constrained firms is associated with higher persistence of profitability than the investment of flexible firms. For the period 1962-1989, the difference in persistence between both groups is 0.103 (0.714 vs. 0.611), significantly different from 0 with t-test= 3.30. Similarly, for the period 1990-2011 the difference in persistence between both groups is 0.139 (0.671 vs. 0.531), significantly different from 0 with t-test= 2.74. Panel B also shows that for both sample periods the distribution of constrained firms is associated with higher persistence in profitability than the distribution of flexible firms. For the period 1962-1989 the difference in persistence between both groups is 0.064 (0.724 vs. 0.660), significantly different from 0 with t-test= 2.11. Similarly, for the period 1990-2011 the difference in persistence between both groups is 0.095 (0.689 vs. 0.594), although it is not significantly different from 0 with t-test= 1.87.

Table 25: Panel Regressions of next year's Market Adjusted Returns on Investment (Sample period)

The table shows coefficients and t-tests of Panel regressions of next year's returns on investment and dummies for financial constrained firms (top quintile of Whited and Wu 2006 index) and for flexible firms (bottom quintile of Whited and Wu 2006 Index). The regressions include firm and year effects. Standard errors are clustered by firm and year. The variables are defined as: market adjusted returns = 12 Month Buy and Hold Market Adjusted Return in t+1. CONST = indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise. FLEX = indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise. INVEST RANK = decile rank based on the change in net operating assets plus change in cash holdings over total average assets. SIZE RANK = decile rank based on logarithm of total assets. MKT_BOOK RANK= decile rank based on market value of equity divided by book value of equity. LEVERAGE RANK = decile rank based on Financial Debt to Total Assets ratio. Data is from Compustat for the period 1962-2011.

Panel A: Estimation Output

(Dependent Variable = 12 Month Buy and Hold Market Adjusted Return)

Variable	Pred. Sign	Reg. 1	Reg. 2
INVEST RANK$_t$ (β_1)	-	**-0.0393**	-0.0158
		-3.94	-1.39
INVEST RANK$_t$*CONST (β_2)	+	0.0141	0.0296
		0.65	1.33
INVEST RANK$_t$*FLEX (β_3)	-	**-0.0484**	-0.0283
		-2.92	-1.45
CONST (α_2)		0.0267	-0.0014
		1.68	-0.08
FLEX (α_3)		0.0012	-0.0001
		0.10	-0.01
Controls			
SIZE RANK$_t$		**-0.0865**	**-0.1058**
		-5.34	-7.45
MKT_BOOK RANK$_t$		-0.0224	**-0.0461**
		-1.50	-3.04
LEVERAGE RANK$_t$		**-0.0779**	**-0.0454**
		-5.76	-3.04
FIRM FIXED EFFECTS		Yes	Yes
YEAR FIXED EFFECTS		Yes	Yes
R-Square		0.1466	0.1653
Observations		41,685	53,321

Panel B: Wald Test of Difference Coefficients

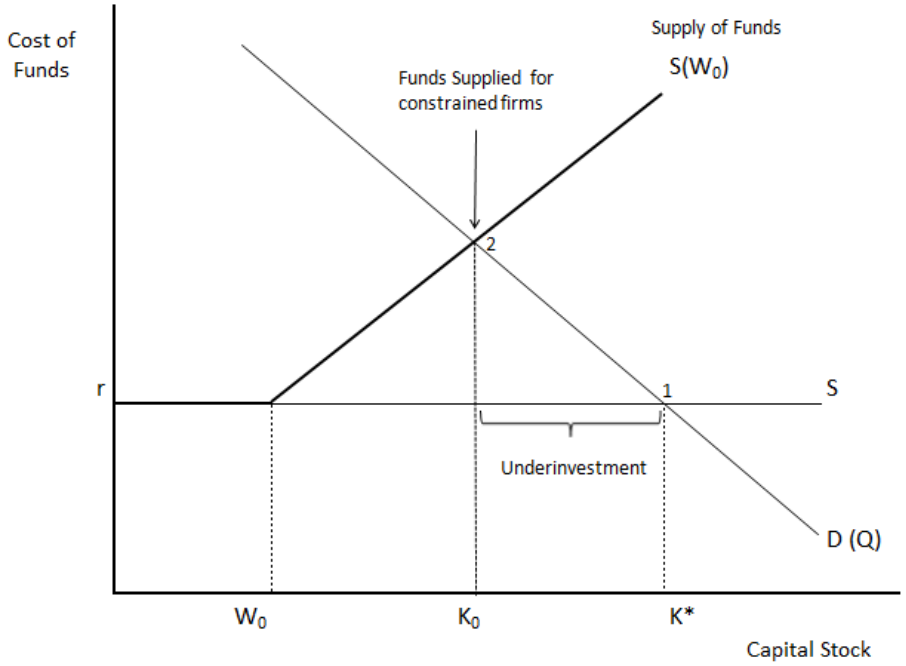
	Period	Constrained Firms	Quintiles 2-4 Firms	Flexible Firms	Difference Cons-Flex
		$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	1962-1989	-0.0252	**-0.0393**	**-0.0878**	**0.0625**
		-1.25	-3.94	-6.29	2.60
		$\beta_1+\beta_2$	β_1	$\beta_1+\beta_3$	$\beta_2-\beta_3$
$INVEST_t$	1990-2011	0.0138	-0.0158	**-0.0441**	**0.0579**
		0.69	-1.39	-2.72	2.25

Wald Tests show that for both sample periods, the investment of constrained firms is associated with higher future abnormal returns than the investment of flexible firms. For the period 1962-1989, the annual return of financially constrained firms in the top decile of investment is 6.25 percentage points higher than the annual return of financially flexible firms, significantly different from 0 with t-test= 2.60. Consistent with the results of section 5.3, the investment of financially constrained firms is not significantly associated with negative future abnormal returns. In contrast, for financially flexible firms the investment is significantly associated with negative future abnormal returns (-0.0878). Similarly, for the period 1990-2011, the annual return of financially constrained firms in the top decile of investment is 5.79 percentage points higher than the annual return of financially flexible firms, significantly different from 0 with t-test= 2.25. Again, consistent with the results of section 5.3, the investment of financially constrained firms is not significantly associated with negative future abnormal returns. In contrast, the investment of financially flexible firms is significantly associated with negative future abnormal returns (-0.0441).

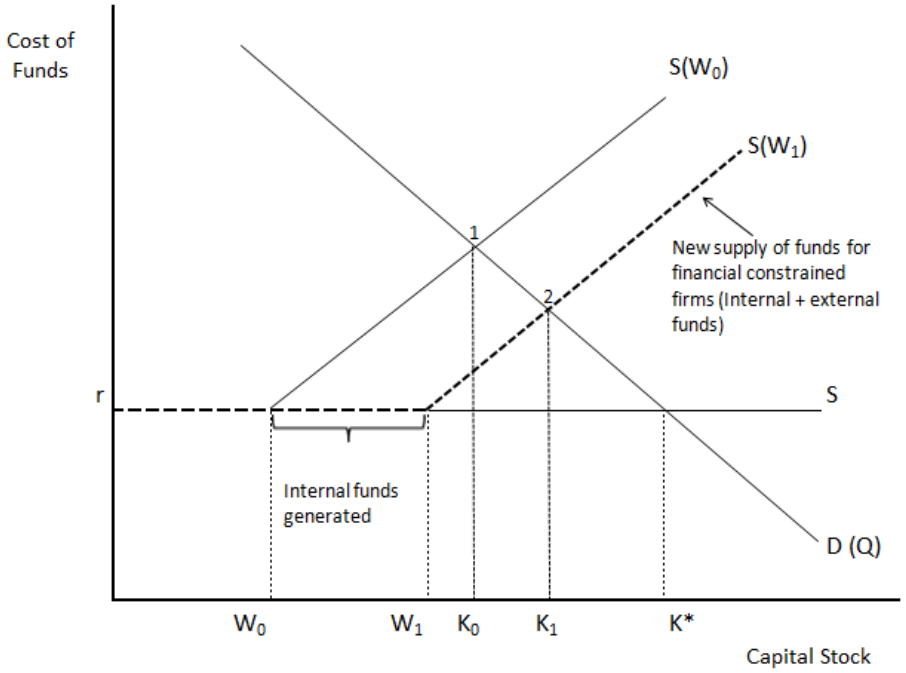
Figure 1: Investment and Financial Constraints

This figure shows the effect of financial constraints and overinvestment of cash flow problem on the optimal level of investment. S represents the supply of funds if the firm is not financially constrained. r is the market real rate of return (adjusted by risk). D(Q) indicates firm's demand for investment that depend on the firm's investment opportunities (Q). K* is the optimal level of investment that a given firm can reach if it is not financially constrained. K_0 is the level of investment that a constrained firm can reach if it has a level of internal resources equal to W_0. W represents the level of internal resources (wealth) that the firm has in a given period. S(W) is the supply of funds that a constrained firm faces given its level of internal resources(W). K_1 is the level of investment that a constrained firm can reach if it has a level of internal resources equal to W_1 ($>W_0$). K^{OI} is the level of investment that a flexible firm can reach if its CEO has empire building incentives. The difference between K^{OI} and K* represents the level of overinvestment of cash flow.

Case 1: Financially Flexible Firms vs. Constrained Firms



Case 2: Cash Retention and Constrained Firms



Case 3: Overinvestment of Cash Flow

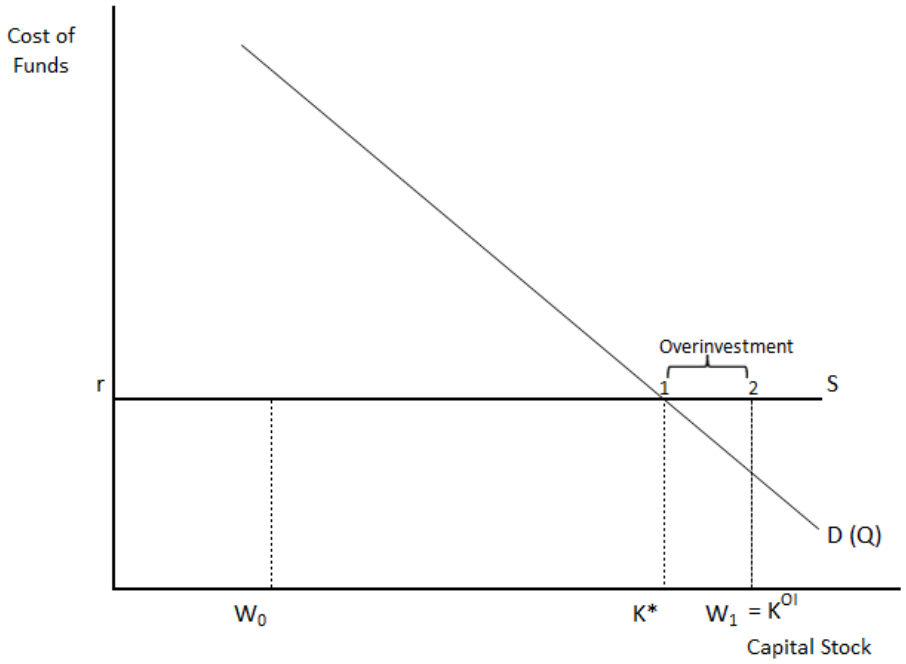
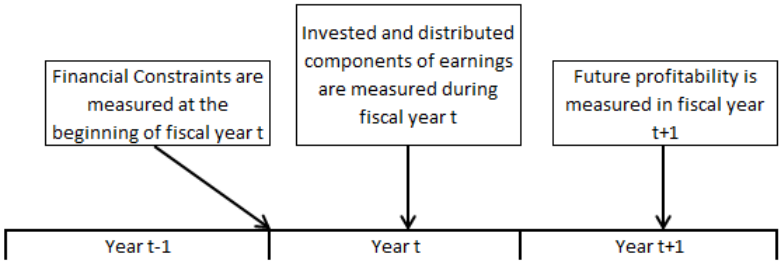
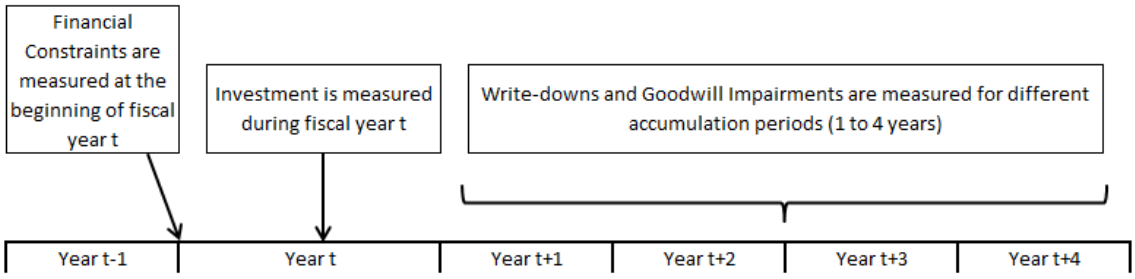


Figure 2: Timeline and Variable Measurement

a. Persistence Tests



b. Write-downs and Goodwill Impairments Tests



c. Return Tests

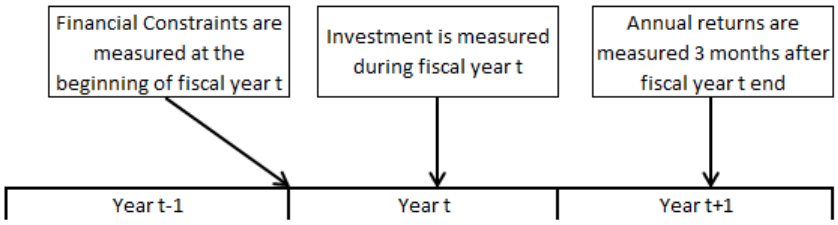


Figure 3: Time series properties of earnings

This figure shows means of earnings for financially constrained and flexible firms. Year 0 is the year in which firms are ranked and assigned in equal numbers to five quintiles based on the proxy for financial constraints (Whited and Wu 2006). Earnings are measured as Income before extraordinary items over Average Total Assets. Financially Constrained firms are those in top quintile of Whited and Wu 2006 financial constraints index, while financially flexible firms are those in the bottom quintile of Whited and Wu 2006 financial constraints index.

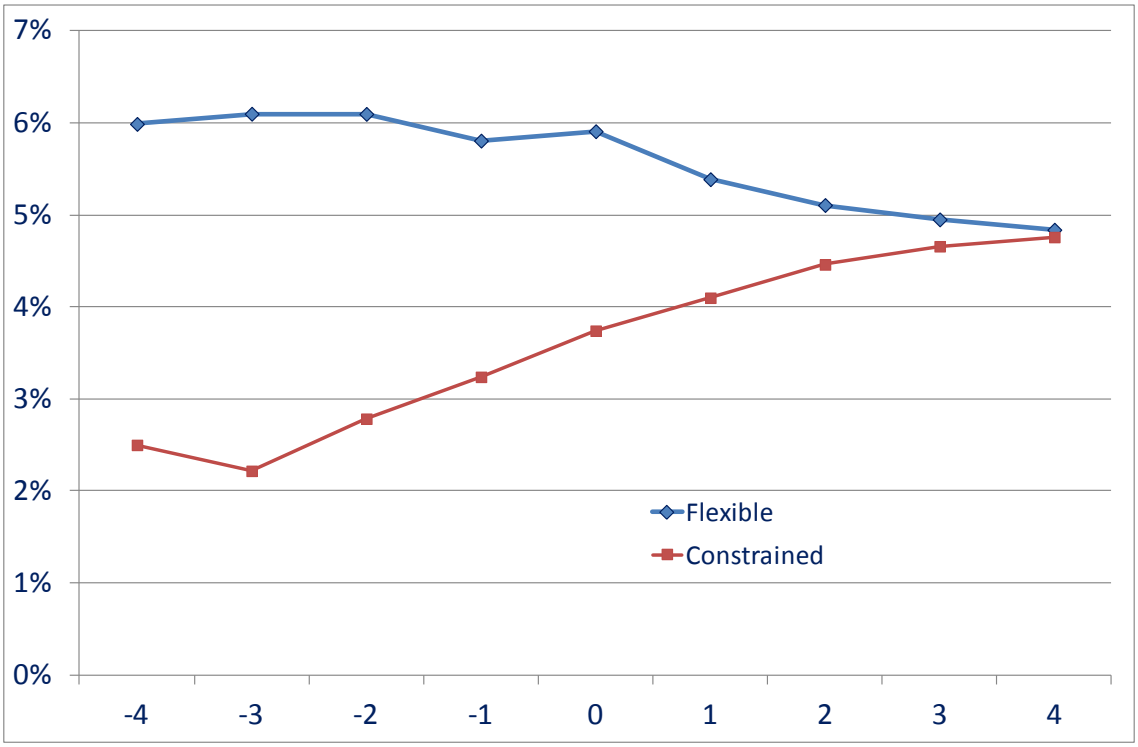
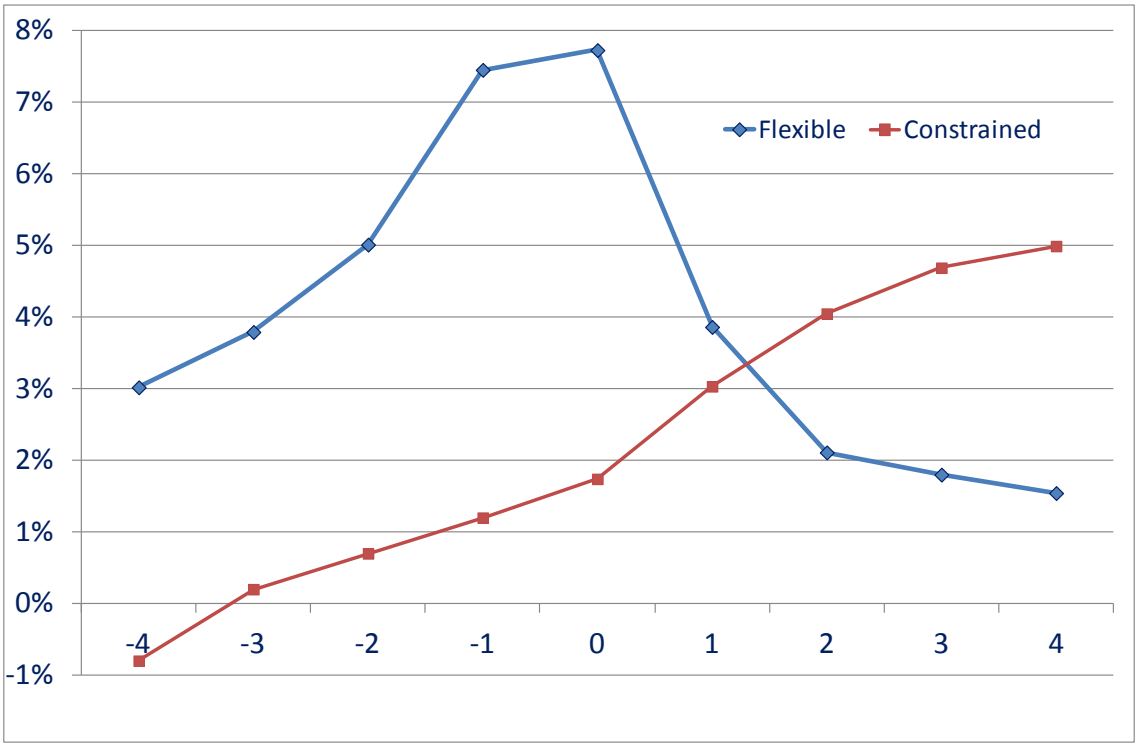


Figure 4: Time series properties of earnings (Highest quintile of Investment)

This figure shows means of earnings for financially constrained and flexible firms for the highest quintile of investment. Year 0 is the year in which firms are ranked and assigned in equal numbers to five quintiles based on the proxy for financial constraints (Whited and Wu 2006). Earnings are measured as Income before extraordinary items over Average Total Assets. Financially Constrained firms are those in top quintile of Whited and Wu 2006 financial constraints index, while financially flexible firms are those in the bottom quintile of Whited and Wu 2006 financial constraints index.



Appendix A

Examples of Financially Constrained firms

Prior research has characterized financially constrained firms as firms with good investment opportunities that face difficulties to get financing for all their profitable projects (Fazzari et al 1988). Whited and Wu 2006 point out that, in general, financially constrained firms do not pay dividends, reinvest their cash flow, do not have access to Bond markets, and tend to be young and small.

Examples:

Rockford Corp (2001)

Rockford Corp is classified as financially constrained in my sample in 2001. The company has several characteristics consistent with financially constrained firms. In 2001, Rockford was a small firm with no bond rating, low cash flow relative to its investment projects, and minimal analyst coverage. Additional evidence can be found in Rockford's 10-K report.

In 2001, Rockford Corp reported in its 10-K file that "We have **never declared, nor have we paid, any cash dividends** on our common stock. We currently **intend to retain our earnings to finance future growth** and, therefore, do not anticipate paying cash dividends on our common stock in the foreseeable future".

In addition, the following paragraph shows that the access of the company to external financing is restricted. "As at December 31, 2001, we had a balance of $9.3 million on our $30.0 million bank credit facility, which is **collateralized by**

substantially all of our assets and consists of a swing line of credit and a revolving line of credit. The swing line of credit has a blended variable interest rate per annum of LIBOR plus 175 basis points. The revolving line of credit has a fixed interest rate of 10.67% per annum. As at December 31, 2001, the bank credit facility had a weighted average interest rate of 4.04% per annum. The bank credit facility is scheduled to mature on June 28, 2003. The bank credit facility contains provisions that, among other things, require that we maintain certain minimum levels of EBITDA and debt service coverage and also limit the amount of debt incurred and capital expenditures annually"

Deckers (2000)

Deckers is classified as financially constrained in my sample in 2000. The company has several characteristics consistent with financially constrained firms. In 2000, Rockford was a small firm with no bond rating, low cash flow relative to its investment projects, and minimal analyst coverage. Additional evidence can be found in Deckers's 10 K report.

Similar to Rockford Corp, Deckers reported in its10-K file that "The Company has never declared or paid cash dividends on its capital stock. The Company currently intends to retain any earnings for use in its business and does not anticipate paying any cash dividends in the foreseeable future".

The firm also shows other sign of low financial flexibility, since its only source of external financing is collateralized bank credit. This credit possesses strict conditions and the firm can only terminate the arrangement prior to the expiration if it pays a significant fee. "The Company has a credit facility ("the Facility") which provides a maximum availability of $50,000,000, subject to a borrowing base of up to 85% of eligible accounts receivables, as defined, and 65% of eligible inventory, as defined. Up to $15,000,000 of borrowings may be in the form of letters of credit. The Facility bears interest at the lender's prime rate (9.50% at December 31, 2000), or at the Company's election at an adjusted Eurodollar rate plus 2%. **The Facility is secured by substantially all assets of the Company** and expires January 21, 2002. The agreement underlying the Facility includes a tangible net worth covenant, requiring the Company to maintain tangible net worth, as defined, of $30,000,000.

Under the terms of the Facility, if the Company terminates the arrangement prior to the expiration date of the Facility, **the Company may be required to pay the lender an early termination fee ranging between 1% and 3%** of the Facility's commitment amount, depending upon when such termination occurs.

Appendix B

Decomposition of Earnings

This appendix follows Dechow et al. (2008) to decompose earnings in two components: investment and distribution.
To understand this decomposition, it is useful to start with the balance sheet identity:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Owners Equity} \quad (1)$$

Total Assets can be decomposed in operating assets (OA) and financial assets (FA). Total Liabilities can be decomposed in operating liabilities (OA) and financial liabilities (DEBT).

$$FA + \text{OA} = DEBT + \text{OL} + \text{Owners Equity} \quad (2)$$

If we denote Net Operating Assets (NOA) as the difference between operating assets and operating liabilities, owners' equity as (*EQUITY)*, and rearranging yields:

$$FA + NOA = DEBT + EQUITY \quad (3)$$

The *NOA* expression on the left is the accounting accrual system's estimate of the net value of the firm's operations. Taking the first difference of equation (3) gives:

$$\Delta FA + \Delta NOA = \Delta DEBT + \Delta EQUITY \quad (4)$$

Standard clean surplus assumptions for changes in equity and changes in debt imply:

$$\Delta EQUITY = INCOME - DIST\ EQ \quad (4a)$$
$$\Delta DEBT = \text{Interest Expense} - \text{Interest Paid} - DIST\ D \quad (4b)$$

Where:
INCOME = net income,
DIST EQ = net cash distributions to equity holders (dividends and repurchases less equity issuances),
DIST D = net noninterest cash distributions to debt holders (debt repayments less debt issuances).

Substituting, and under the assumption that all interest expense is equal to interest paid in cash, leads to an alternative representation of equation (4):

$$\Delta FA + \Delta NOA = -DIST\ D + INCOME - DIST\ EQ \quad (5)$$

The expression on the left of this equation represents the comprehensive measure of investment, and so it can be denoted as *INVEST* $(=\Delta FA + \Delta NOA)$.

$$INVEST = INCOME - DIST\ D - DIST\ EQ \quad (6)$$

If we denote DIST as the sum of net distribution to debt holders (DIST D) and the net distribution to equity holders (DIST EQ), and rearranging yields:

$$INCOME = INVEST + DIST \quad (7)$$

Appendix C

Variable Definitions

Variable	Definition
Assets in Place	Total Assets minus financial assets minus Goodwill over average total assets.
Bond Ratings	Indicator variable that takes the value of 1 if the firm has a bond rating in a given year t and 0 otherwise. Available period 1984-2011.
Cash/Assets	Ratio of cash and equivalents over total assets.
Cash Flow/Assets	Ratio of cash flow to total assets.
Change in financial assets (ΔFA)	FA investment component of earnings defined as change in financial assets in t.
Change in financial assets Rank (ΔFA RANK)	Decile rank based on the change in financial assets over total average assets.
Change in net operating assets (ΔNOA)	NOA investment component of earnings defined as change in net operating assets in t.
Change in net operating assets Rank (ΔNOA RANK)	Decile rank based on the change in net operating assets over total average assets.

CONST	Indicator variable that takes the value of 1 if the firm is in the top quintile of Whited and Wu 2006 index and 0 otherwise.
DIST	Net capital distributions to debt and equity holders average total assets.
Firm Age	The log of the number of fiscal years that a firm is present in the Compustat Database since 1950.
FLEX	Indicator variable that takes the value of 1 if the firm is in the bottom quintile of Whited and Wu 2006 index and 0 otherwise.
GOODWILL	Goodwill over average total assets.
Goodwill Impairments (GWI)	Annual goodwill impairments over average total assets.
Industry Sales Growth	Firm's three-digit industry sales growth.
Leverage	Ratio Debt to Assets. It is calculated as the sum of Long and short term debt over total assets.
Leverage Rank	Decile rank based on Financial Debt to Total Assets ratio.
INVEST	Invested component of earnings defined as change in net operating assets plus change in financial assets in t.
INVEST Rank	Decile rank based on the change in net operating assets plus change in cash holdings over total average assets.
Long Term Debt/Assets	Ratio of the long-term debt to total assets.

LOSS	Indicator variable that takes the value of 1 if the firm report a loss in period t and 0 otherwise.
Market to Book	Market value of equity over book value of equity.
MKT_BOOK Rank	Decile rank based on market value of equity divided by book value of equity.
Positive dividend	Indicator variable that takes the value of 1 if the firm pays dividends in a given year t and 0 otherwise.
Ret_Mkt	12-Month Buy and Hold Market Adjusted Return in t+1. The returns are computed from the CRSP monthly file. The annual return measurement interval starts in the fourth month after the previous fiscal year end to allow time for the annual financial information to be made publicly available.
R&D	Annual R&D expense over average total assets.
R&D Rank	Decile rank based on R&D expense.
Size	Logarithm of total assets.
SIZE Rank	Decile rank based on logarithm of total assets.
Sales Growth	Firm sales growth, calculated as: sales(t)/sales(t-1) – 1.
Tobin’s q	Ratio of book value of total assets over the book value of total assets minus the book value of equity plus the market value of equity.
WD	Accumulated write-downs defined as the sum of write-downs over average assets.

WW index	Financial Constraints index proposed by Whited and Wu 2006. It is calculated from the following formula: $WW_{it} = -0.091 \cdot CF_{it} - 0.062 \cdot DIVPOS_{it} + 0.021 \cdot TLTD_{it} - 0.044 \cdot LNTA_{it} + 0.102 \cdot ISG_{it} - 0.035 \cdot SG_{it}$ Where CF is the ratio of cash flow to total assets; TLTD is the ratio of the long-term debt to total assets; DIVPOS is an indicator that takes the value of one if the firm pays cash dividends; LNTA is the natural log of total assets; ISG is the firm's three-digit industry sales growth, and SG is firm sales growth