Do Firms Continue Excessively? An Empirical Analysis

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Abstract

Firm entry and exit decisions are central to theories of market organization and the firm, and to the efficiency of a competitive market environment. Timely exit by "inefficient" firms is essential for the reallocation of economic resources from lower-value to higher-value users. If firm performance continues to decline it may become optimal to dismantle the firm and release its assets to higher-valued outside uses. However, different stakeholders in the firm may disagree about the exit decision and its timing. In some cases stockholders and/or managers with control rights may prefer continued operation of the firm even when the liquidation value of the firm exceeds its continuation value. In this paper we investigate the problem of excessive continuation among U.S. firms. Using firm level data for the period 1970-2011 we observe that on average 13.6% of the U.S. firms continued excessively each year. The average duration of excessive continuation was 3.6 years with costs for such firms of about 15.9% in cumulative loss of returns on assets. We employ a discrete-time hazard model using multi-period Logit regressions and find that greater liquidity, greater debt maturity, weaker debt covenants and greater shareholder-management agency problem are all positively associated with excessive continuation.

1. Introduction

> "Managers fail to recognize that they themselves must downsize; instead they leave the exit to others while they continue to invest. When all managers behave this way exit is significantly delayed at substantial cost of real resources to society." – Michael C. Jensen (1993)

Firm entry and exit decisions are central to theories of market organization and the firm, and to the efficiency of a competitive market environment (Hopenhayn, 1992; Cooley and Quadrini, 2001). Timely exit by "inefficient" firms is essential for the reallocation of economic resources from lower-value to higher-value users. There is insufficient work in the extant literature on the timing of firm exit decisions and the efficiency of such decisions (Jensen, 1993). In this paper we focus on the phenomenon of "excessive continuation" which is defined as the continuation of firm

operations beyond an optimal point, and we examine empirically the pervasiveness of this phenomenon and its consequence to firm shareholders.

If firm performance continues to decline it may become optimal to dismantle the firm and release its assets to higher-valued outside uses. However, different stakeholders in the firm may disagree about the exit decision and its timing. In some cases stockholders and/or managers with control rights may prefer continued operation of the firm even when the liquidation value of the firm exceeds its continuation value. DeAngelo et al. (2002) provide a case study of L.A. Gear, a top performer in the late 1980s that eventually experienced a sharp decline. L.A. Gear was able to continue its money-losing operations for many years because of its liquid asset structure, long debt maturity, low ongoing debt payments and the lack of restrictive bond covenants. The L.A. Gear case illustrates that managers of distressed firms may have significant discretion over the timing of a reorganization and that creditors may not always be able to impose reorganization even in the presence of value destruction due to unprofitable going-concern operations. We analyze the excessive continuation phenomenon in order to gain a better understanding of agency-related issues within the firm and their potential detrimental effect on firm exit and resource allocation.

We use firm-specific data for the period 1970-2011 to show that a significant proportion of U.S. firms (the maximum being 24.8% in a year with an average of 13.6% per year) continued excessively over this period and that the phenomenon was most concentrated in the Metal Mining Industry. We found more instances of excessive continuation among firms with zero debt compared to levered firms. It is possible that low debt firms lack the additional layer of monitoring of management that creditors provide. This finding is also consistent with the free-cash-flow theory developed by Jensen (1986) which suggests that leverage decreases agency costs by reducing cash flows available for expropriation by managers. We also observe that while economic booms and financial market expansion are negatively correlated with excessive continuation in the short run, they tend to increase excessive continuation in the long run. Such a pattern is consistent with a number of classical theories of overinvestment, such as those of Wicksell (1898), Schumpeter (1912), Mises (1912), Hayek (1929, 1935), Minsky (1986, 1992) and Hoffman and Schnabl (2009). Our results indicate that there is an average duration of excessive continuation of 3.6 years with a cost to firms of about 15.9% in cumulative loss of returns on assets (ROA).

We employ a discrete-time hazard model using multi-period Logit regressions to show that higher liquidity, higher debt maturity, weaker debt covenants and higher stockholder-manager agency conflicts are all associated with greater excessive continuation. Our results also indicate that firms with zero and low debt exhibit greater excessive continuation.

Several authors have studied the issue of excessive continuation. Grinblatt and Titman (1998) have shown that stockholders tend to continue firm operations even when firm liquidation value exceeds continuation value. Andrade and Kaplan (1998) report that highly-levered distressed firms exhibit a tendency to delay restructuring and filing for bankruptcy. Mella-Barral (1999) shows that excessive continuation is more likely when debt service is low whereas liquidation may occur early when debt service is high. Décamps and Faure-Grimaud (2002) analyze the incentives of equity holders of a levered company to shut down and show that equity holders' decisions favor excessive continuation. Lambrecht and Myers (2007) suggest that when managers are able to appropriate firm cash flows firm exit tends to be delayed. Davydenko (2011) finds that a large proportion of severely distressed firms that are below a theoretical "default boundary" are able to delay default for many years. Davydenko and Rahaman (2011) use a sample of distressed firms that are worth more dead than alive to show that these firms continue operations long after the optimal exit time.

They report that the failure to liquidate costs the typical firm in their sample about 8.7% of its asset value in lost earnings relative to the industry median.

While the existing literature does demonstrate that excessive continuation exists and is costly, it does so for a limited sample of firms. We extend the extant analyses by using a larger sample of firms and a longer time period and we provide stronger evidence of the pervasiveness and costs of excessive continuation in the U.S.

The rest of the paper is organized as follows. Section 2 explains the data used and defines the relevant variables. Section 3 presents the empirical analysis. The first part of this section, section 3.1, presents data on the prevalence, duration and cost of excessive continuation and discusses the relationship between excessive continuation and the business cycle and also how excessive continuation is resolved. In section 3.2, we perform empirical analyses to identify the determinants of excessive continuation and present our findings. In section 4 we provide our conclusions.

2. Data and Variables

2.1 Data

We obtain initial data on all available U.S. industrial firms from the annual Compustat files for the period 1950-2012.[1] We exclude non-U.S. companies (items in Compustat with FIC code not denoting USA), financial companies (SIC code 6000-6799) and utilities companies (SIC code 4900-4999) from our sample. A total of 278,796 observations meet these criteria. We also exclude firms with missing, zero or negative values for total assets, missing values for common equity, net income, closing share price, book value per share, debt in current liabilities and long-term debt. We obtain data on the annualized 3-month Treasury bill (T-bill) rate from the Board of Governors of the Federal Reserve System for the period 1954 to 2012 and exclude years for which the data are unavailable.[2] 180,424 observations for the period 1961-2012 meet these criteria. Finally, we limit our sample to the period 1970 to 2011 to ensure consistency in the coverage of firms in our sample. For years before 1970, Compustat's coverage of firms (that meet the above criteria) is much lower with an average of 936 firms per year between 1961 and 1969 compared to an average of 4,052 firms per year between 1970 and 2011. We omit the year 2012 from our sample because there was a sudden drop in the number of firms (that meet the above criteria) in 2012; there were 1,805 firms compared to an average of 3,498 firms per year for the five preceding years.

Our final sample consists of 170,192 observations with 16,759 unique firms and covers the period 1970-2011. The sample includes 4,052 firms on average per year with a maximum of 5,832 firms in 1996 and a minimum of 2,653 firms in 1970. To minimize the impact of possibly spurious outliers the Compustat data on all relevant non-categorical variables were winsorized at the 0.01 level. Figure 1 presents the number of firms for each year for the period 1970-2011 in our sample.

[1] https://www.capitaliq.com/home/what-we-offer/information-you-need/financials-valuation/compustat-financials.aspx
[2] http://www.federalreserve.gov/releases/h15/data.htm

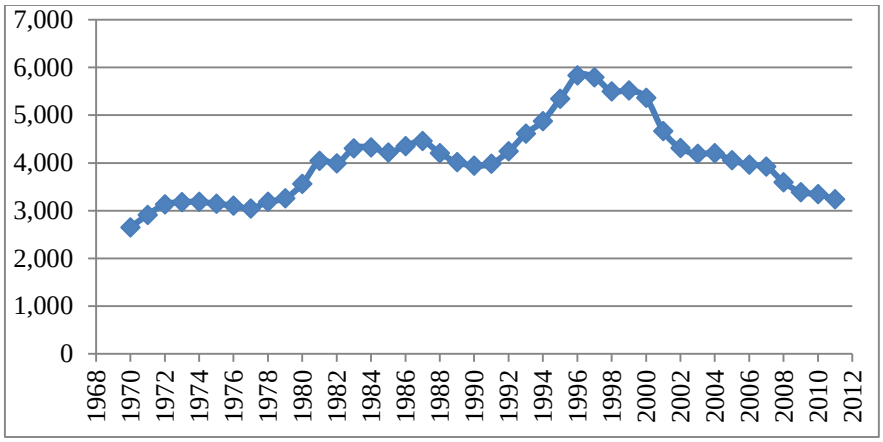

Figure 1: Number of Firms per Year in our Sample for the Period 1970-2011.

2.2 Main Variables

2.2.1 Excessive Continuation

We consider a firm to be continuing excessively if its return on equity (ROE), computed as the ratio of net income to total common equity, is less than the risk-free rate (RF) – proxied by the annualized 3-month Treasury bill rate – for three consecutive years. For example, if a firm's ROE < RF for each year from 1991-1993 and the firm still operates in 1994, then we consider the firm to be continuing excessively in 1994. If, instead of using 'three consecutive years', we alter the definition by using 'two or four consecutive years', we do not obtain significant changes in our results. Our definition of excessive continuation is similar to that in Asquith et al. (1994) who define a firm as being financially distressed if its EBITDA is less than its reported interest expenses in any two consecutive years.

There is no unambiguous definition of excessive continuation. We define the phenomenon on the basis of the difference between the return on equity (ROE) and the risk-free rate (RF) because if a firm is unable to earn a risk-free return for three consecutive years for its shareholders and yet continues to operate, then it seems reasonable to label its operations as excessive continuation.

We recognize that this definition is not free of problems and we employ alternative definitions of excessive continuation in Section 3.2.5.

2.2.2 Determinants of Excessive Continuation

We follow the extant literature in selecting four main determinants of excessive continuation. These are: liquidity (DeAngelo et al., 2002), debt maturity/low debt servicing (Mella-Barral, 1999; DeAngelo et al., 2002), debt covenants (DeAngelo et al., 2002) and shareholder-management agency conflict (Lambrecht and Myers, 2007). In subsequent sections we show that greater liquidity, greater debt maturity, weaker debt covenants and greater agency conflicts all increase excessive continuation. The economic rationale for these relationships is provided in the following paragraph.

A firm with greater liquidity is able to continue its operations even when continuation is not optimal; if the firm is in financial distress greater liquidity may exacerbate the problem of excessive continuation. In addition, greater liquidity implies more free-cash-flow which, as suggested by Jensen (1986), creates agency conflicts between managers and shareholders possibly increasing excessive continuation. As Mella-Barral (1999) shows, excessive continuation is more

likely when debt service is low, while liquidation is more likely when debt service is high as equity holders become less willing to keep the firm alive by servicing the debt. Longer debt maturity is typically characterized by low debt obligations, possibly raising excessive continuation. Stronger debt covenants provide greater protection to debt stakeholders and limit excessive continuation by forcing management/shareholders to internalize potential agency costs imposed on creditors; better protection of creditors induces liquidation if liquidation value exceeds going concern value. Note as well that a larger management stake in the company may attenuate excessive continuation by limiting agency costs imposed on shareholders and creditors by management.

We compute liquidity as the ratio of cash and short-term investments to total assets. Debt maturity is proxied by the ratio of long-term debt to total liabilities. Debt covenants are proxied by the interest coverage ratio; which is computed as: log{1+ (EBITDA/interests and related expenses)}. We use the total ownership share of the top 5 executives in the company as a proxy for agency problem between shareholders and management. An increase in the total ownership share of the top managers of the firm is interpreted as a decrease in shareholder-management agency conflict. We obtain executive information on ownership from the Execucomp database.[3] The database reports top executives' salary, bonus, and stock option since 1992. For each firm-year combination we sum the ownership shares and convert the executive level data into firm-year information. We merge the new data with our Compustat data using firm Id (gvkey) and year Id (fyear) that are common in both datasets.

In addition to the foregoing 4 variables, we also include two types of risk in our estimations – bankruptcy risk and business risk. To measure the bankruptcy/default risk, we estimate firm Expected Default Frequency (EDF) based on the framework of Merton (1974). As Merton shows, the equity of the firm is a call option on the underlying value of the firm with a strike price equal to the face value of the firm's debt. The probability of bankruptcy for the firm is inferred from its underlying value relative to its debt level where the value of the firm depends on the volatility of its assets. While neither the underlying firm value nor its volatility are directly observable, both can be inferred from the value and volatility of equity and other observable variables by solving two simultaneous equations. Based on these values, the Merton model specifies the probability of default as the normal cumulative density function of a z-score which depends on the firm's value, its volatility and the face value of its debt. Moody's KMV Corporation and Bharath and Shumway (2008) suggest alternative procedures to recover the EDF from the Merton's (1974) model; we follow the procedure suggested by Bharath and Shumway (2008). Finally, business risk is measured by the time series standard deviation of cash flows of the past ten years for each firm[4].

2.2.3 Firm- and Industry-level Controls

We incorporate firm and industry level controls for all our estimations. The firm-level controls used in the regressions are logarithm of total assets, logarithm of firm age which is proxied by the observation serial number of a firm, e.g., for the $n\text{-}th$ observation of a firm we assume the firm's age to be n years, proxy measure of firm tangibility which is computed as the ratio of property, plant and equipment to total assets, profitability which is calculated as the ratio of EBITDA to net sales, and growth potential which is proxied by the Tobin's q.[5] Industry-level (we use the first two

[3] https://www.capitaliq.com/home/what-we-offer/information-you-need/qualitative-data/execucomp.aspx

[4] We compute this measure of cash flow volatility using past 10 years' data when available. Not all firms in our sample contain 10 years' worth of data. In those cases to calculate this measure we only consider firms with at least 5 years' of available relevant data.

[5] Tobin's q is computed as: MV/(0.9*MV + 0.1*BV), where BV = Book value of assets and MV = book value of assets + market value of equity - book value of common equity - deferred taxes.

digits of the SIC codes to categorize industries) controls are industry leverage ratio which is computed as the ratio of industry total liabilities to industry total assets, sales-based HHI (Herfindahl, Hirschman Index), and industry sales growth rate. All variables are winsorized at the 0.01 level to remove outliers.[6]

3. Empirical Analysis

3.1 Univariate Analysis

3.1.1 Firm and Industry Characteristics

Table 1 reports summary statistics for the firm-level and industry-level controls and the main variables of interest, while Table 2 presents differences in mean and median values of these variables between firms that continue excessively and those that do not.

Table 1: Summary Statistics of Firm Level Controls, Industry Level Controls and Main Variables of Interest

		Mean	Median	Min	Max	St. Dev
Firm-Level Controls	Log (TA)	4.42	4.27	-1.80	10.86	2.15
	Log (Firm Age)	2.38	2.40	0.00	3.91	0.83
	Tangibility	0.29	0.24	0.00	0.94	0.23
	Profitability	-0.53	0.03	-29.55	0.92	3.19
	Tobin's q	1.02	1.02	0.90	1.11	0.04
Industry-Level Controls	Ind. Lev. Ratio	0.59	0.58	0.41	0.95	0.09
	HHI	0.08	0.05	0.01	0.46	0.08
	Ind. Sales. Growth Rate	0.09	0.08	-0.22	0.47	0.10
Main Variables of Interest	Liquidity	0.17	0.08	0.00	0.94	0.21
	LT Debt/Tot. Liab.	0.29	0.27	0.00	0.92	0.25
	Int. Cov. Ratio	2.24	2.04	-1.20	6.55	1.35
	Own. Sh. of Top Exec.	5.54	2.35	0.04	46.40	8.48
	Bankruptcy Risk	0.07	0.00	0.00	1.00	0.21
	Business Risk	0.06	0.05	0.01	0.32	0.05

It can be observed from Table 2 that firms that continue excessively, compared to those that do not are characterized by lower total assets, lower tangibility, lower net profit, lower growth potential, lower industry concentration, lower industry sales growth, higher firm age and higher industry leverage ratio. The table also suggests that on average excessive continuation corresponds to greater liquidity, smaller debt maturity, weaker debt covenants, greater agency problems, greater bankruptcy risk and greater business risk. The mean difference in ownership share of top executives is statistically significant at the 5% level while the mean differences in all the other variables are significant at the 1% level. Note also that the signs of the median differences reported in the table are very similar. While most of these differences carry the expected signs, it should be

[6] Except for the proxy of agency problem all the variables used for the purpose of the econometric analysis are computed using information available in the Compustat database.

noted that these are differences in unconditional averages and medians, and more rigorous analysis is needed to draw unambiguous inferences.

Table 2: Mean and Median Differences in Firm Level Controls, Industry Level Controls and Main Variables of Interest between Firm-Years that Continue Excessively and the Ones that Do Not

		Mean Difference	Median Difference
Firm-Level Controls	Log (TA)	-0.956***	-0.947***
	Log (Firm Age)	0.125***	0.000
	Tangibility	-0.022***	-0.046***
	Profitability	-1.056***	-0.090***
	Tobin's q	-0.002***	-0.004***
Industry-Level Controls	Ind. Lev. Ratio	0.002***	0.001
	HHI	-0.004***	-0.005***
	Ind. Sales. Growth Rate	-0.013***	-0.012***
Main Variables of Interest	Liquidity	0.075***	0.037***
	LT Debt/Tot. Liab.	-0.037***	-0.102***
	Int. Cov. Ratio	-0.810***	-0.724***
	Own. Sh. of Top Exec.	-1.045**	0.168
	Bankruptcy Risk	0.048***	$2*10^{-7}$***
	Business Risk	0.010***	-0.007***

*** denotes significance at the 1% level and ** denotes significance at the 5% level

3.1.2 Excessive Continuation by Year

Figure 2 displays the percentage of U.S. firms continuing excessively each year from 1970-2011. The percentage of firms continuing excessively clearly exhibits an increasing trend. For the period 1970-2011, every year on average 13.63% of the U.S. firms continue excessively. Most firms (24.77%) continue excessively in 2003, followed by 2004 (22.28%) and 2002 (21.83%).

3.1.3 Excessive Continuation by Industry

On the basis of the first two digits of the SIC codes, our sample consists of a total of 66 industries. For the period 1970-2011, 11.34% of the U.S. firms (on average) continue excessively in each industry. The industries with the highest proportions of firms continuing excessively are Metal Mining Industry (30.71%), Non-Classified Establishments (25.21%) and Chemical and Allied Products Manufacturers (25.16%).

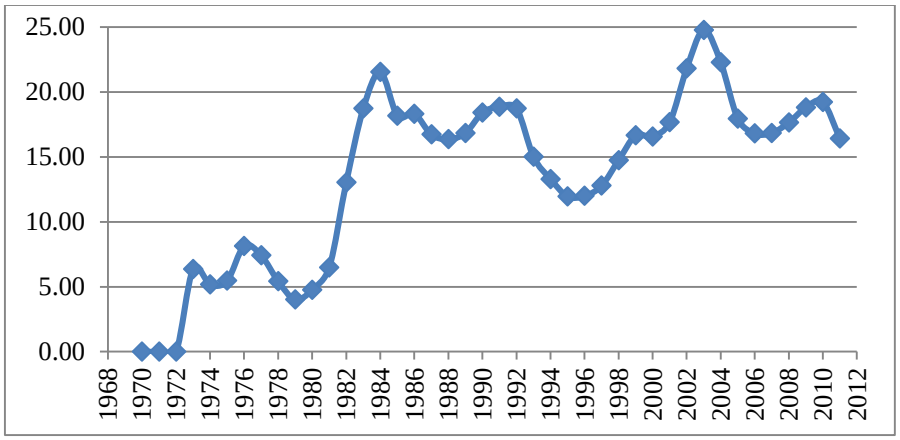

Figure 2: Percentage of U.S. Firms Continuing Excessively during 1970-2011

3.1.4 Excessive Continuation by Levered vs Unlevered Firms

Several authors have studied the puzzle of zero-debt firms (see e.g., Strebulaev and Yang, 2012; Byoun and Xu, 2012) and asserted that such firms tend to be different from levered ones. Strebulaev and Yang (2012) report that zero-debt firms are more profitable, pay more taxes and dividends, have higher market-to-book ratios and higher cash balances when compared to a reference set of proxy levered firms (which the authors construct as a control group). Byoun and Xu (2012) point out that zero-debt firms are much smaller but have significantly larger common equity compared to levered firms. We follow the literature and define zero-debt firms as those with zero current as well as long-term debt in any year. Firms with a positive amount of debt are termed levered firms. We believe it is important to distinguish the two to see whether excessive continuation is a function of capital structure.

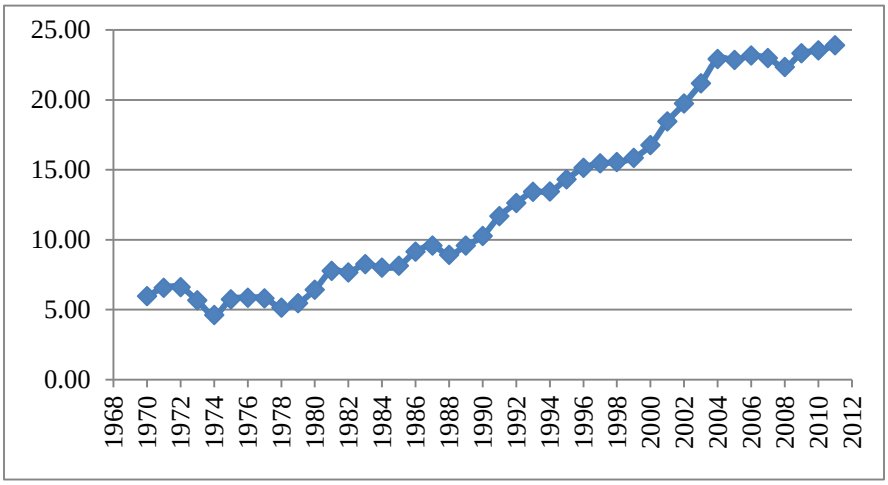

Figure 3: Percentage of Zero-Debt Firms in the U.S. during 1970-2011

Similar to the aforementioned studies, we find that since the beginning of the 1980s, the proportion of zero-debt firms has been rising in the U.S. During the period 1970-2011, each year (on average) 12.86% of the U.S. firms issued zero debt. Between 1970 and 1980, the proportion of zero-debt firms remained stable at around 6% and then rose consistently reaching 23.90% in 2011. Figure 3 presents the proportion of zero-debt firms in the U.S. from 1970-2011.

In the 66 industries in our sample, over the period 1970-2011, on average 10.06% of the firms in each industry were zero-debt firms. Industries with the highest concentration of zero-debt firms were Non-Classified Establishments (27.95%), Forestry (26.44%) and Legal Services (26.09%) while industries with the lowest concentration of zero-debt firms were Fishing, Hunting and Trapping (0%), Museums, Art Galleries and Gardens (0%) and Membership Organizations (0%).

We hypothesize that zero-debt firms are likelier to continue excessively since levered firms have an additional layer of monitoring provided by the creditors, and also because introduction of debt can curb excessive continuation by reducing agency costs of free-cash-flow (Jensen, 1986). Consistent with the above reasoning, we find that every year for the period of 1970-2011, (on average) 15.82% of zero-debt firms continue excessively whereas 13.02% of levered firms do the same. This difference is statistically significant at the 10% level.[7] Figure 4 exhibits the proportion of zero-debt firms and levered firms that continue excessively for our sample period.

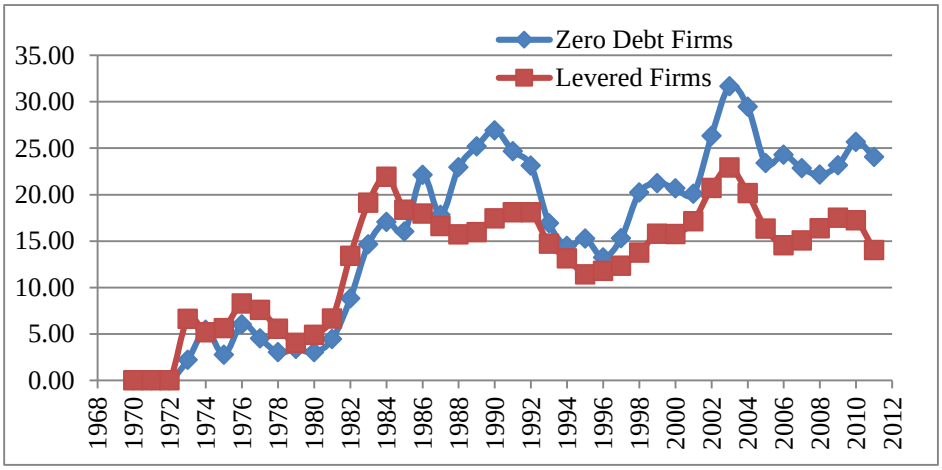

Figure 4: Percentage of Zero-Debt Firms and Levered Firms Continuing Excessively

The Figure shows that, overall, the proportions of zero-debt and levered firms that continue excessively are positively correlated. Most zero-debt firms (31.64%) continued excessively in 2003, followed by 2004 (29.46%) and 1990 (26.91%), whereas most levered firms (22.93%) continued excessively in 2003, followed by 1984 (21.93%) and 2002 (20.72%).

As we look into the various industries, for the period 1970-2011, in every industry on average 13.64% of the zero-debt firms continue excessively. Industries in which the highest proportions of zero-debt firms continue excessively are Miscellaneous Repair Services (70.00%), Water Transportation Industry (45.16%) and Chemical and Allied Products Manufacturers (39.37%). An average of 11.08% of the levered firms continue excessively in each industry. Industries in which the highest proportions of levered firms continue excessively are Metal Mining Industry (30.61%), Non-Classified Establishments (23.31%) and Social Services Industry (22.18%).

3.1.5 Excessive Continuation over the Business Cycle

We begin our investigation of excessive continuation over the business cycle by computing the correlation coefficients between the percentage of firms continuing excessively in a given year and cyclical components of GDP, S&P500 index and the Dow Jones Industrial Average (DJIA) in that

[7] p-value of 0.056 on the basis of a standard t-test where the null hypothesis is: "There is no difference in excessive continuation between levered firms and zero-debt firms" against the alternative hypothesis: "Excessive continuation is less prevalent in levered firms compared to zero-debt firms.

same year.[8] Not surprisingly, we find all the correlation coefficients to be negative, i.e., a higher proportion of firms continuing excessively is associated with a declining economy and a falling stock market. We also examine the relationship between excessive continuation in a given year and economic expansion in some earlier year in order to gain insight as to how the business cycle affects excessive continuation.

The classical business cycle theories of Wicksell (1898), Schumpeter (1912), Mises (1912), Hayek (1929, 1935) and Minsky (1986, 1992) suggest that generous credit expansion and overinvestment during the boom cause the subsequent slump.[9] According to these models, distorted prices in the financial sector propel an unsustainable economic boom. Factors such as exceptionally low interest rates set by the central bank (Wicksell, 1898; Mises, 1912) and/or by the aggregate banking sector (Hayek, 1929, 1935), innovations in the real sector (Schumpeter, 1912) and in the financial sector (Minsky, 1992) and excessive credit expansion due to declining risk aversion (Minsky, 1986) all lead to the economic expansion whereas structural distortions in the real and financial sectors cause the contraction. As Hoffman and Schnabl (2009) argue, an economic downturn is not caused by an abrupt random shock but rather by excessive investment during the boom which inevitably leads to the subsequent slump.

If economic expansion coincides with overinvestment as the above business cycle theories suggest, then we should observe excessive continuation in any year to be positively correlated with an economic boom in an earlier year as excessive continuation would be the consequence of overinvestment. To investigate this hypothesis, we compute the correlation between the percentage of firms continuing excessively and the 4th lag of the cyclical components of GDP, S&P500 index and the Dow Jones Industrial Average (DJIA).[10] In this case, all the correlation coefficients are positive, which is consistent with the hypothesis that an economic boom or a stock market expansion eventually leads to excessive continuation. Table 3 reports all the correlation coefficients.

[8] We obtain data on GDP from the U.S. Department of Commerce Bureau of Economic Analysis and data on S&P500 index and the DJIA from the FRED (Federal Reserve Economic Data) database. The trends are isolated using the Hodrick-Prescott (HP) filter. The cyclical components are computed as the logarithms of the variable values divided by their trends.

[9] As cited by Hoffmann and Schnabl (2009).

[10] We use the 4th lag to be consistent with our identification of excessive continuation. Let us explain this with an example. Assume that the economy is in boom in 1990 and some firms overinvest which brings these firms under our excessive continuation criterion (ROE < RF) zone the following year, i.e., 1991. If these firms continue to earn lower ROE than RF till 1993 due to overinvesting in 1990 because of the economic boom, then by our definition, the firms would be considered to be continuing excessively in 1994. Therefore, if we are to investigate whether economic boom is positively associated with proportion of firms continuing excessively, then we need to pair up the said proportion of firms in 1994 with the 4th lag of the variable identifying economic/stock market boom, i.e., its 1990 value when computing the correlation coefficient.

Table 3: Correlation Coefficients between Percentage of Firms Continuing Excessively vs. Cyclical Components of GDP, S&P500, DJIA and their Lags

Measures of Economic and Financial Business Cycles	Correlation Coefficients between Percentage of Firms that Continue Excessively and Business Cycle Measures
Cyclical component of GDP	-0.06
Cyclical component of S&P 500	-0.06
Cyclical component of DJIA	-0.03
4th lag of cyclical component of GDP	0.19
4th lag of cyclical component of S&P 500	0.23
4th lag of cyclical component of DJIA	0.11

3.1.6 Duration of Excessive Continuation

We have computed the average, maximum, and minimum durations of excessive continuation for firms that continue excessively for at least 1 year during our sample period. The average duration of excessive continuation is 3.60 years with maximum and minimum durations of 23 years and 1 year, respectively. The number of firms continuing excessively declines with an increase in duration. Figure 5 plots the number of firms by the duration of excessive continuation.

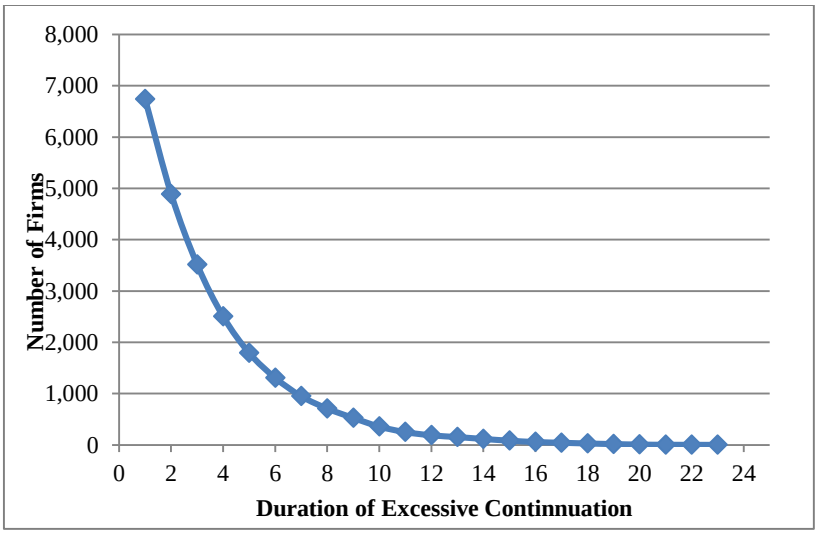

Figure 5: Number of Firms by Duration of Excessive Continuation

Over all 66 industries, the average duration of excessive continuation (computed using firms that continue excessively at least for 1 year) by industry is 5.46 years. The industries with the highest average duration are Chemicals and Allied Products Manufacturers (10.65 years), Measuring and Analyzing Instruments Manufacturers (10.17 years) and Oil and Gas extraction Industry (9.67 years).

3.1.7 Resolution of Excessive Continuation

Of the 16,759 firms in our sample 73.88% get deleted from Compustat at some point during the 41 years that our sample covers.[11] Compustat reports the date as well as the reason for the deletion of firms. Of the deleted companies, 37.13% continue excessively at some point in time whereas 19.97% continue excessively in the last year before being deleted from Compustat.

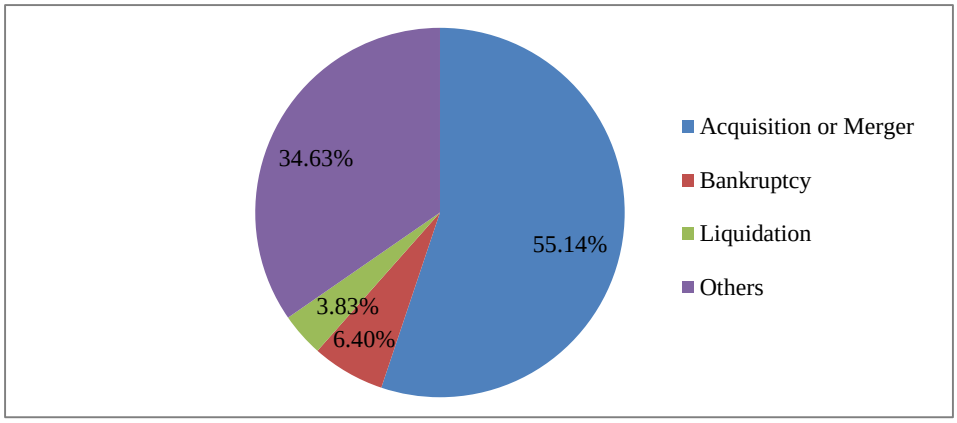

Figure 6: Percentage of Firms that Continue Excessively at Some Point during the Sample Years and Get Deleted from Compustat - by Reason for Deletion

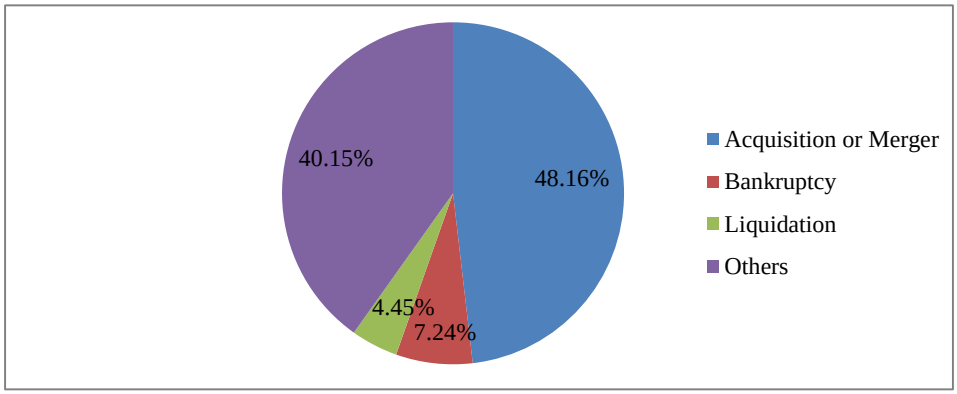

Figure 7: Percentage of Firms that Continue Excessively in the Last Year before Getting Deleted from Compustat - by Reason for Deletion

From the perspective of the firms that continue excessively, 68.22% get deleted from Compustat, 12.64% keep continuing excessively and the remaining 19.13% come out of excessive continuation.[12] Of the excessively continuing firms that do get deleted from Compustat, 36.70% continued excessively in the last year before being deleted from Compustat.

Of the firms that continue excessively at some point during our sample years and get deleted from Compustat, 55.14% merged or were acquired, 6.40% went bankrupt, 3.83% were liquidated

[11] This rate is not surprising given the high rate of business failures in the U.S., e.g., according to a University of Tennessee research, 71% of all businesses in the U.S. fail within 10 years of start-up (See URL: http://www.statisticbrain.com/startup-failure-by-industry/).

[12] This implies that 12.64% of these firms are not deleted and continue excessively in the last year for which data are available in our final sample whereas 19.13% of these firms are not deleted and do not continue excessively in the last year for which data are available in our final sample.

and the remaining 34.63% were deleted for other reasons.[13] This implies that of the firms that continue excessively at some point in time, 37.62% merged or got acquired, 4.36% went bankrupt, 2.61% were liquidated and 23.63% were deleted for other reasons. When we consider firms that continue excessively in the last year before deletion, we obtain similar proportions. The noteworthy difference is that a lower percentage of these firms merged or were acquired and a higher percentage went bankrupt, were liquidated and were deleted for other reasons. Figure 6 presents by reason for deletion the percentages of firms that continue excessively at some point during the sample years and are deleted from Compustat whereas Figure 7 presents the same for firms that continue excessively in the last year before being deleted.

3.1.8 Cost of Excessive Continuation

We measure the cost of excessive continuation as the cumulative loss of returns on assets (ROA) where ROA is computed as the ratio of EBITDA to total assets. To calculate the cumulative loss of ROA, we compute firm-wise average ROA for years when firms do not continue excessively. We then calculate the difference between this average and the ROA for each year in which a firm continues excessively and call this difference the 'loss of ROA due to excessive continuation'. Next, we cumulate this loss over years of excessive continuation for each firm that continues excessively for at least 1 year in our sample. Finally, we compute for each additional year of excessive continuation the average cumulative loss across all the excessively continuing firms.

We observe a significant destruction of asset value as firms continue excessively and the cost increases with each additional year of excessive continuation. We calculate the average cumulative loss of ROA to be 12.52% for 3 years and 18.07% for 4 years, which given the average duration of excessive continuation of 3.60 years implies an average cost of about 15.85% (we obtain this figure by computing a weighted average of the costs for 3 and 4 years). Figure 8 plots the relationship between duration and average cost of excessive continuation which shows strong positive correlation between the two.

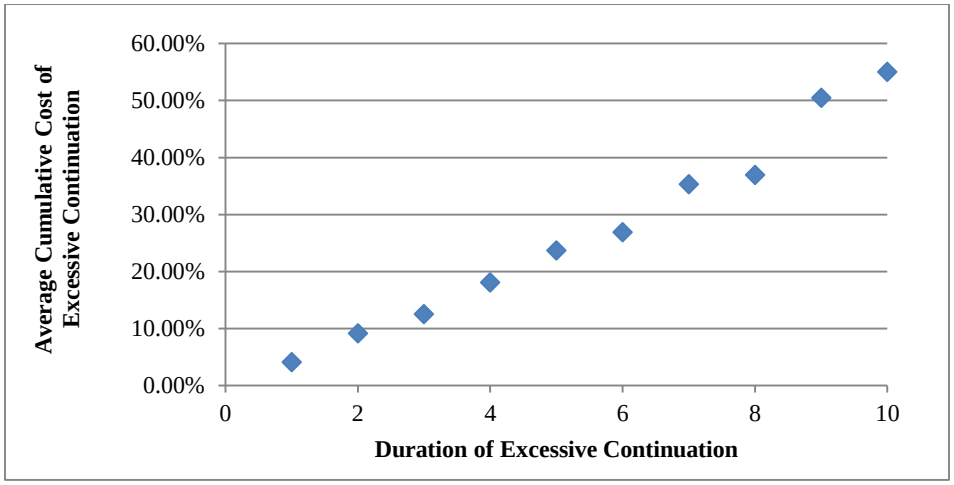

Figure 8: Relationship between Duration and Average Cost of Excessive Continuation. Cost is measured by cumulative loss of returns on assets that firms incur as they continue excessively each additional year.

[13] Other reasons for company deletion from Compustat include: reverse acquisition, no longer fits original format, leveraged buyout, other (no longer files with SEC among other possible reasons) but pricing continues, now a private company, other (no longer files with SEC among other reasons).

3.2 Regression Analysis

3.2.1 Estimation Methodology

We use a discrete-time hazard model to estimate the hazard of excessive continuation for the sample firms. We assume that each firm has a risk of continuing excessively and that the risk process is governed by a simple form of a proportional hazard function (Cox, 1972): $\lambda(t, X_t) = \lambda_0(t) exp^{X_t'\beta}$, where λ_0 is the baseline hazard of excessive continuation over time t under the condition $exp^{X_t'\beta} = 1$ implying absence of heterogeneity among the firms. Firm heterogeneity, reflected in the covariates X_t, therefore can affect the actual hazard.

An extension, proposed by Cox (1972), of the above mentioned proportional hazard model in discrete time is as follows: $\frac{\lambda(t|X_t)}{1-\lambda(t|X_t)} = \frac{\lambda_0(t)}{1-\lambda_0(t)} exp^{X_t'\beta}$. By taking logs, one can obtain a model of the Logit of the hazard or odds of excessive continuation at time t conditional on the covariates X_t, $Logit\big(\lambda(t|X_t)\big) = \alpha + X_t'\beta$, where $\alpha = Logit\big(\lambda_0(t)\big)$ is the Logit of the baseline hazard and $X_t'\beta$ is the effect of the covariates on the Logit of the actual hazard. Shumway (2001) argues that under certain regularity conditions, a multi-period Logit model is equivalent to the discrete-time hazard model when log of firm age is included among the covariates as a proxy for the baseline hazard. That is exactly the method we follow in this paper.

3.2.2 Empirical Results

Table 4 presents the baseline regression results. The table contains 8 columns in each of which the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. Each column includes all the firm and industry level controls as independent variables. Column (1) includes only the controls whereas in columns (2) to (7), the variables of interest are added one by one in the following order: liquidity, debt maturity, debt covenants, a measure which is inversely proportional to agency problems, bankruptcy risk, and business risk. Finally, column (8) includes all the controls and variables of interest. We present all the coefficients in the form of a logarithm-of-odds ratio in the table.

From these results it is apparent that higher liquidity, greater debt maturity, weaker debt covenants and higher shareholder-management agency conflict all increase excessive continuation by firms.[14] When added individually to the control variables, the coefficients on each of these four variables are statistically significant at the 1% level. When all variables are included in the regression, the coefficients on liquidity and debt covenants proxy are significant at 1% level whereas the coefficients on the other two are significant at the 5% level. Note that the regression results for debt maturity are contrary to the result that we obtain when we look at the difference in mean values, which implies a lower average debt maturity for firms that continue excessively. This difference simply indicates that on average firms that continue excessively have lower long term debt. These firms also have less total assets and are less profitable. It is possible that these attributes reduce these firms' ability to finance with long term debt. Indeed we find, when controlling for these variables, that greater debt maturity increases excessive continuation.

The coefficient on the bankruptcy risk proxy is positive and statistically significant at the 1% level when it is added individually to the control variables but it loses significance when all the variables are included in the regression. The coefficient on the business risk proxy on the other

[14] Note that the negative sign of the coefficient on the measure inversely proportional to agency problem implies a positive relationship between excessive continuation and principal-agent conflict.

hand is not statistically significant in either regression. Additionally, we find strong evidence that a greater amount of total assets reduces excessive continuation as the coefficient on total assets in each regression is negative and statistically significant at the 1% level.

Another significant result pertains to how industry concentration affects excessive continuation. From the raw mean differences as well as most of the regression results, it seems that industry concentration is negatively correlated with excessive continuation, which implies a positive association between competition and excessive continuation. However, once we control for bankruptcy and/or business risk, the coefficient on industry concentration becomes positive (statistically significant at the 1% level when bankruptcy risk and business risk are added individually to the firm and industry level controls) implying increased competition reduces excessive continuation. Given that these risks are correlated with excessive continuation it seems important to control for these to ascertain the relationship between industry concentration and excessive continuation. Nevertheless, the relationship between excessive continuation and industry concentration requires further investigation and we leave this for future research.

To address concerns regarding reverse causality we run all the regressions with all the explanatory variables lagged by one year and find the results to be very similar to the baseline regressions. The lag of each of the key variables of interest except business risk proxy remains statistically significant at the 1% level with the expected sign as each is added individually to the firm and industry level controls. However, when all the variables are included in the regression the coefficients on the lagged variables of liquidity, debt maturity and the measure inverse of agency problem lose significance. In that regression the coefficient on the lag of debt covenant is significant at the 1% level whereas the coefficient on the lag of bankruptcy risk is significant at the 10% level and both carry the expected signs. The regression results with the lagged explanatory variables are reported in Table 5. The fact that the results of the regressions with the lagged variables are not too different from the baseline results should alleviate much of the concern with respect to reverse causality. This is because causal effect from the outcome variable to any of the explanatory variables does not make sense with the lagged explanatory variables as all the explanatory variables are measured temporally before the outcome variable.

3.2.3 Robustness: Capital Structure

To identify how capital structure affects excessive continuation we include capital structure dummy variables in our regressions. We start by constructing a zero-debt dummy variable for firms that only use equity financing. Then we alter the cut-off point and construct 6 additional dummy variables one by one for firms with leverage ratios (ratio of total debt to total assets) less than 1%, 5%, 10%, 15%, 20% and 25%. To ascertain the role of capital structure we run two sets of regression in the first of which each dummy variable is individually added to firm and industry level controls. In the second, these are added one by one when all variables are included in the regression.[15] The regression results are reported in Tables 6 (a) and 6 (b).

From the first set of regressions we find that excessive continuation is greater among zero-debt firms with a positive coefficient on the zero-debt dummy which is statistically significant at the 1% level. The same relationship holds as we raise the cut-off point to 1%, 5% and 10% leverage

[15] Note that for the second regression with zero-debt dummy the measure for bankruptcy risk is excluded from the estimation equation because calculation of the bankruptcy risk proxy requires debt to be positive. When total debt of a firm is zero we treat the observation for bankruptcy risk proxy to be missing and as a result, for each of the available observations of bankruptcy risk proxy zero-debt dummy takes the value 0. Since there is no variation in the value of zero-debt dummy the inclusion of bankruptcy risk proxy in a regression the objective of which is to identify the effect of zero-debt firms is meaningless.

ratios. For all these cut-off points firms with less than these leverage ratios display greater excessive continuation compared to the ones with higher-than-cut-off leverages. The coefficients on all three dummies are positive and significant at the 1% level. As we move the cut-off to 15% and higher the relationship breaks down. The coefficient on the 15% leverage dummy is not significant while the coefficients on dummies for higher leverages are negative and significant at the 1% level. In the second set of regressions when all variables are included, although the coefficient on the zero-debt dummy loses significance, coefficients on the dummy variables for firms with less than 1%, 5%, 10% and 15% leverage ratios are positive and significant (at 10%, 5%, 1% and 1% levels, respectively). In these regressions, coefficients on dummies for 20% and 25% leverage are not significant.

There are two possible explanations for these results. The first is that creditors provide an additional layer of monitoring which serves to curb excessive continuation. The second is derived from the work of Jensen (1986) according to which leverage decreases agency costs associated with free-cash-flow. Debt reduces opportunistic cash flow appropriation and overinvestment by managers and, as a result, decreases incentives to continue excessively. Note that we find this limiting effect of debt on excessive continuation at lower leverage ratio cut-off points and the relationship seems to break down at higher leverage levels. Perhaps as we increase leverage and the number of creditors the monitoring and enforcement capability of individual creditors eventually diminishes and loses effectiveness in curbing excessive continuation. As to the second explanation, as suggested by Jensen (1986), as leverage increases expected bankruptcy costs of leverage rise and reduce the effectiveness of debt as an instrument for controlling excessive continuation.

It should be noted that in the second set of regressions the signs and statistical significance of the coefficients on the four main variables of interest remain virtually unaltered.

3.2.4 Robustness: Feedback Effects of Business Cycles

To address the concern that the business cycle may affect our regression results we identify the largest 10% and the largest 20% of the firms in each industry each year and then run all the regressions without these firms.[16] The regression results are reported in Tables 7 (a) and 7 (b). The idea behind these regressions without the large firms is that if any substantial business cycle effect is present, then it should affect the economy through the largest firms and as a result, without these firms we should observe substantially different regression outcomes. This notion is consistent with the "Granular Hypothesis" proposed by Gabaix (2011), which suggests that business cycles are essentially governed by idiosyncratic shocks to large firms. Carvalho and Grassi (2013) build upon the work of Gabaix (2011) and show that in a standard firm dynamics setting (Hopenhayn, 1992) with a finite number of firms the business cycle is led by large firm dynamics.

As can be observed in Table 7 (a), without the largest 10% of the firms in each industry the regression results are qualitatively almost identical to the baseline results. Even quantitatively these are very similar. The coefficients on the main variables of interest, i.e., the proxies for liquidity, debt maturity, debt covenants and agency conflict all carry the expected signs and are statistically significant, both when added individually to firm and industry level controls (all are

[16] We determine firm size on the basis of market capitalization. We do so because any business cycle effect that transpires through large firm dynamics would most likely affect the aggregate economy through the capital market.

significant at the 1% level) and when all variables are included in the regression (significant at 1%, 10%, 1% and 5% levels, respectively).

When the regressions are run without the largest 20% of the firms in each industry, as reported in Table 7 (b), the results remain very similar. When added individually to firm and industry level controls, although the coefficient on debt maturity loses significance, the coefficients on the other three carry the expected signs and are significant at the 1% level. When all variables are included in the regression coefficients on proxies for liquidity, debt maturity, debt covenants and agency conflict all carry the expected signs and are statistically significant, respectively at 5%, 10%, 1% and 5% levels.

Given the negligible differences in results between the baseline regressions and the regressions without the largest 10% and the largest 20% of the firms, we tentatively conclude that the regression results presented in this paper are not significantly affected by business cycles.

3.2.5 Robustness: Alternative Definitions of Excessive Continuation

The definition of excessive continuation that we have used thus far is not free from criticism. In this section we address concerns pertaining to the definition. The first is whether our definition is weakened because of a leverage effect. Leverage increases the volatility of ROE, which makes ROE an increasing function of leverage.[17] Therefore, our baseline definition may generate greater measured excessive continuation among some firms simply because they have comparatively lower amounts of leverage.

To address this issue we use an alternative definition based on return on assets (ROA) instead of ROE. We keep the numerator (net income) fixed and alter the denominator (use total assets instead of total common equity), which eliminates the problem of the effect of leverage in our definition. Using this 'ROA < RF for three consecutive years' rule we run all the regressions that we run using our baseline definition and obtain similar results which are reported in Table 8. The coefficients on all four major variables of interest have the expected signs and are significant at the 1% level when the variables are added individually to the firm and industry level controls. When all variables are included in the regression the coefficients on debt maturity and agency problem lose significance but the coefficients on liquidity and debt covenants remain significant at the 1% level carrying the expected signs. One interesting difference is that with the ROA based definition in both regressions the coefficient on the business risk proxy is negative and significant at the 1% level. With our baseline definition on the other hand, the coefficient was not statistically significant in either regression. This result suggests that stakeholders as a whole dislike facing high degree of cash flow volatility and when volatility is high they prefer to reorganize/liquidate than continue operating. This also seems to indicate that creditors care more about cash flow volatility compared to equity holders and when faced with high degree of volatility exert greater amount of pressure on equity holders to reorganize/liquidate.

The next issue we address pertains to the use of the risk-free rate as the cut-off rate. It may be inappropriate to use a universal cut-off rate for all types of businesses since the acceptable level of profitability may differ across industries. We employ two supplementary definitions of excessive continuation to address these concerns. Instead of the risk-free rate we compare both the ROE and the ROA with the industry median returns to define excessive continuation and run all the

[17] In a perfect market Modigliani-Miller (MM) world with risk-free debt, no agency costs or other "frictions" ROE is a positive and linear function of leverage. Outside the MM world when "frictions" such as transaction costs etc. are present the relationship between ROE and leverage remains positive but becomes more complex.

regressions using these two definitions.[18] Table 9 reports the estimation results when excessive continuation is defined using the 'ROE < Industry median ROE for 3 consecutive years' rule whereas Table 10 presents the regression results when excessive continuation is defined using the 'ROA < Industry median ROA for 3 consecutive years' rule.

The regressions run using the 'ROE < Industry median' rule yield similar results to the regressions with the 'ROE < RF' rule with a few differences. When added individually to the firm and industry level controls all four variables of interest carry the expected signs and are significant at the 1% level. In the regression that includes all variables the coefficients on liquidity and debt covenants proxies remain significant at the 1% level carrying the expected signs but the coefficients on the other two lose significance. Additionally, in both the regressions, unlike the baseline results, the coefficients on business risk proxy are significant at the 1% level with negative sign. This suggests that when industry specific performance is considered equity holders themselves become concerned with high levels of cash flow volatility and when faced with these would reorganize/liquidate rather than continue excessively. Finally, the results of the regressions run using the 'ROA < Industry median' rule are qualitatively identical to the estimation results obtained using the 'ROA < RF' rule in terms of the signs and statistical significance of the coefficients on all the major variables of interest, both when the variables are added individually to the firm and industry level controls and when all the variables are included in the regression.

Overall, the results generated from the foregoing alternative measures do not contradict our hypotheses and we conclude that our findings on the determinants of excessive continuation by firms are robust.

4. Conclusion

Firm entry and exit decisions are fundamental to theories of market organization and the firm, and to the efficiency of a competitive market environment. Timely exit by "inefficient" firms is crucial for the reallocation of economic resources from lower-value to higher-value users. If firm performance continues to decline it may become optimal to liquidate the firm and release its assets to higher-valued outside uses. However, different stakeholders in the firm may disagree about the exit decision and its timing. Thus, stockholders and/or managers with control rights may prefer continued operation of the firm even when the firm's liquidation value exceeds its continuation value. In this paper we investigated the problem of excessive continuation among U.S. firms and showed that on average 13.6% of the U.S. firms continued excessively each year over the period 1970-2011. The average duration of excessive continuation was 3.6 years with costs for such firms of about 15.9% in cumulative loss of returns on assets. We employed a discrete-time hazard model using multi-period Logit regressions and found that greater liquidity, greater debt maturity, weaker debt covenants and greater shareholder-management agency problem are all positively correlated with excessive continuation. We used the difference between ROE and the risk-free rate for our baseline definition of excessive continuation. To address the leverage effect pertaining to ROE we replaced it with ROA, and to address industry specific differences in acceptable profitability level, we compared both ROE and ROA to industry adjusted medians in our definition of excessive continuation. Our findings were robust across all definitions.

[18] In several industries we observe a few extremely low values (large negative) for ROE and ROA even after winsorizing the relevant variables at the 0.01 level. Computing industry averages therefore would potentially underestimate these industries' performance. To avoid this problem we use industry median as it is immune to outliers.

Table 4: Determinants of Excessive Continuation – Baseline Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.292***	-0.286***	-0.300***	-0.245***	-0.735***	-0.334***	-0.313***	-0.623***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.14)
Log (Firm Age)	0.501***	0.567***	0.507***	0.511***	0.510***	0.322***	0.347***	0.083
	(0.01)	(0.01)	(0.01)	(0.02)	(0.12)	(0.03)	(0.03)	(0.56)
Tangibility	-0.176***	0.383***	0.272***	0.283***	-0.405	0.407***	0.374***	-0.633
	(0.04)	(0.05)	(0.05)	(0.06)	(0.36)	(0.07)	(0.07)	(0.69)
Profitability	-0.058***	-0.039***	-0.058***	-0.099***	-0.124***	-0.145***	-0.151***	-1.830
	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.01)	(0.01)	(1.40)
Tobin's q	-2.102***	-3.730***	-1.927***	-4.618***	-8.579***	-6.437***	-6.572***	-8.715
	(0.24)	(0.24)	(0.24)	(0.39)	(2.04)	(0.44)	(0.40)	(6.44)
Ind. Lev. Ratio	0.637***	0.741***	0.629***	0.636***	-1.817**	1.427***	1.638***	-1.359
	(0.12)	(0.12)	(0.12)	(0.15)	(0.81)	(0.18)	(0.17)	(1.56)
HHI	-1.089***	-0.805***	-1.093***	-0.195	-2.700**	0.842***	0.648***	2.514
	(0.14)	(0.14)	(0.14)	(0.17)	(1.38)	(0.18)	(0.17)	(1.85)
Ind. Sales. Growth Rate	-1.242***	-1.127***	-1.259***	-0.760***	0.937	-1.116***	-1.080***	3.630***
	(0.10)	(0.10)	(0.10)	(0.13)	(0.72)	(0.15)	(0.14)	(1.33)
Liquidity		1.562***						4.143***
		(0.05)						(1.29)
LT Debt/Tot. Liab.			0.249***					1.641**
			(0.04)					(0.79)
Int. Cov. Ratio				-0.514***				-0.623***
				(0.01)				(0.19)
Own. Sh. of Top Exec.					-0.052***			-0.143**
					(0.01)			(0.06)
Bankruptcy Risk						0.462***		-0.610
						(0.06)		(0.87)
Business Risk							0.082	0.609
							(0.34)	(5.03)
Constant	0.27	1.196***	0.075	2.990***	11.178***	4.263***	4.108***	11.691*
	(0.26)	(0.26)	(0.26)	(0.40)	(2.33)	(0.45)	(0.41)	(6.95)
Pseudo-R^2	0.065	0.078	0.065	0.100	0.149	0.084	0.077	0.211
Number of Obs.	87,553	87,552	87,539	65,317	3,486	39,197	43,682	1,026

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 5: Determinants of Excessive Continuation – Regression Results with All Explanatory Variables Lagged by One Year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.276***	-0.268***	-0.280***	-0.191***	-0.717***	-0.287***	-0.276***	-0.585***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.17)
Log (Firm Age)	0.259***	0.322***	0.261***	0.343***	0.380***	0.209***	0.234***	0.423
	(0.01)	(0.01)	-0.01	(0.02)	(0.13)	(0.04)	(0.03)	(0.69)
Tangibility	-0.108**	0.458***	-0.162***	0.552***	-0.141	0.418***	0.428***	-0.553
	(0.04)	(0.05)	(0.05)	(0.06)	(0.39)	(0.08)	(0.07)	(0.86)
Profitability	-0.080***	-0.060***	-0.080***	-0.439***	-0.301***	-0.516***	-0.406***	-6.370***
	(0.00)	(0.00)	(0.00)	(0.06)	(0.10)	(0.04)	(0.03)	(2.19)
Tobin's q	-4.732***	-6.545***	-4.639***	-9.270***	-13.292***	-10.413***	-10.585***	-0.593
	(0.24)	(0.25)	(0.25)	(0.42)	(2.27)	(0.47)	(0.43)	(8.10)
Ind. Lev. Ratio	0.618***	0.705***	0.612***	0.127	-1.812**	0.803***	1.169***	-1.247
	(0.12)	(0.12)	(0.12)	(0.16)	(0.90)	(0.19)	(0.18)	(1.98)
HHI	-1.029***	-0.736***	-1.034***	0.079	-2.979*	1.179***	0.952***	0.786
	(0.14)	(0.14)	(0.14)	(0.17)	(1.54)	(0.19)	(0.18)	(2.47)
Ind. Sales. Growth Rate	-2.009***	-1.885***	-2.018***	-1.367***	-0.47	-2.139***	-2.027***	3.085*
	(0.10)	(0.10)	(0.10)	(0.14)	(0.75)	(0.16)	(0.15)	(1.59)
Liquidity		1.621***						2.284
		(0.05)						(1.80)
LT Debt/Tot. Liab.			0.138***					-0.26
			(0.05)					(0.94)
Int. Cov. Ratio				-0.786***				-1.077***
				(0.02)				(0.26)
Own. Sh. of Top Exec.					-0.047***			-0.020
					(0.01)			(0.03)
Bankruptcy Risk						0.745***		1.351*
						(0.06)		(0.78)
Business Risk							0.025	1.606
							(0.38)	(7.41)
Constant	3.644***	4.755***	3.542***	8.530***	16.311***	8.783***	8.640***	3.234
	(0.27)	(0.27)	(0.27)	(0.44)	(2.60)	(0.48)	(0.43)	(8.59)
Pseudo-R^2	0.072	0.086	0.072	0.161	0.164	0.109	0.099	0.314
Number of Obs.	78,457	78,456	78,449	59,555	2,778	36,445	40,503	809

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 6 (a): Effect of Capital Structure on Excessive Continuation – Capital Structure Dummies are Added Individually to Firm-Level and Industry-Level Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log (TA)	-0.289***	-0.289***	-0.290***	-0.291***	-0.292***	-0.294***	-0.296***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Log (Firm Age)	0.501***	0.504***	0.504***	0.503***	0.501***	0.502***	0.504***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Tangibility	-0.130***	-0.109**	-0.140***	-0.148***	-0.179***	-0.207***	-0.241***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Profitability	-0.057***	-0.057***	-0.057***	-0.057***	-0.058***	-0.058***	-0.058***
	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tobin's q	-2.223***	-2.288***	-2.203***	-2.178***	-2.096***	-2.025***	-1.961***
	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)
Ind. Lev. Ratio	0.645***	0.648***	0.644***	0.645***	0.636***	0.617***	0.579***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
HHI	-1.077***	-1.064***	-1.074***	-1.079***	-1.090***	-1.102***	-1.120***
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Ind. Sales. Growth Rate	-1.226***	-1.219***	-1.231***	-1.234***	-1.242***	-1.250***	-1.257***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Zero-Debt Firms [a]	0.159***						
	(0.03)						
Firms with Leverage Ratio < 1%		0.170***					
		(0.03)					
Firms with Leverage Ratio < 5%			0.074***				
			(0.02)				
Firms with Leverage Ratio < 10%				0.052**			
				(0.02)			
Firms with Leverage Ratio < 15%					-0.004		
					(0.02)		
Firms with Leverage Ratio < 20%						-0.060***	
						(0.02)	
Firms with Leverage Ratio < 25%							-0.135***
							(0.02)
Constant	0.336	0.375	0.322	0.304	0.267	0.252	0.274
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Pseudo-R^2	0.065	0.065	0.065	0.065	0.065	0.065	0.065
Number of Obs.	87,553	87,553	87,553	87,553	87,553	87,553	87,553

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

[a] These are all dummy variables.

Table 6 (b): Effect of Capital Structure on Excessive Continuation – Capital Structure Dummies are Added Individually to All Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Liquidity	4.262***	3.946***	3.973***	3.554***	3.894***	4.121***	4.197***
	(1.24)	(1.30)	(1.31)	(1.33)	(1.33)	(1.30)	(1.28)
LT Debt/Tot. Liab.	1.583**	1.930**	2.446***	3.665***	3.139***	1.718*	1.01
	(0.78)	(0.82)	(0.89)	(1.02)	(0.98)	(0.98)	(0.95)
Int. Cov. Ratio	-0.607***	-0.671***	-0.710***	-0.841***	-0.814***	-0.628***	-0.591***
	(0.18)	(0.19)	(0.19)	(0.21)	(0.20)	(0.19)	(0.19)
Own. Sh. of Top Exec.	-0.148***	-0.142**	-0.145**	-0.151**	-0.151**	-0.143**	-0.143**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Bankruptcy Risk		-0.567	-0.590	-0.745	-0.714	-0.612	-0.614
		(0.87)	(0.87)	(0.88)	(0.89)	(0.87)	(0.87)
Business Risk	-0.687	-0.637	-0.283	0.997	1.649	0.668	0.038
	(4.83)	(5.20)	(5.22)	(5.34)	(5.23)	(5.05)	(5.02)
Zero-Debt Firms [a]	0.065						
	(1.14)						
Firms with Leverage Ratio < 1%		1.327*					
		(0.80)					
Firms with Leverage Ratio < 5%			1.452**				
			(0.62)				
Firms with Leverage Ratio < 10%				2.260***			
				(0.58)			
Firms with Leverage Ratio < 15%					1.572***		
					(0.52)		
Firms with Leverage Ratio < 20%						0.064	
						(0.46)	
Firms with Leverage Ratio < 25%							-0.475
							(0.41)
Constant	10.955	9.731	7.758	4.503	7.49	11.496	12.427*
	(6.81)	(7.07)	(7.23)	(7.24)	(7.07)	(7.09)	(7.02)
Firm-Level Controls	√	√	√	√	√	√	√
Industry-Level Controls	√	√	√	√	√	√	√
Pseudo-R^2	0.209	0.216	0.222	0.244	0.23	0.211	0.213
Number of Obs.	1,074	1,026	1,026	1,026	1,026	1,026	1,026

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

[a] These are all dummy variables.

Table 7 (a): Regression Results – Without the Largest 10% of the Firms in Each Industry and Year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.258***	-0.255***	-0.263***	-0.226***	-0.739***	-0.311***	-0.283***	-0.473***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.15)
Log (Firm Age)	0.531***	0.593***	0.534***	0.536***	0.531***	0.291***	0.324***	-0.165
	(0.01)	(0.02)	(0.01)	(0.02)	(0.12)	(0.03)	(0.03)	(0.59)
Tangibility	-0.189***	0.361***	-0.241***	0.274***	-0.500	0.345***	0.313***	-0.726
	(0.05)	(0.05)	(0.05)	(0.06)	(0.38)	(0.07)	(0.07)	(0.71)
Profitability	-0.056***	-0.039***	-0.057***	-0.104***	-0.116**	-0.137***	-0.143***	-1.872
	(0.00)	(0.00)	(0.00)	(0.02)	(0.05)	(0.01)	(0.01)	(1.38)
Tobin's q	-1.111***	-2.753***	-1.023***	-3.866***	-8.881***	-5.171***	-5.600***	-5.212
	(0.25)	(0.25)	(0.25)	(0.40)	(2.11)	(0.45)	(0.41)	(6.59)
Ind. Lev. Ratio	0.444***	0.550***	0.441***	0.485***	-1.995**	1.245***	1.475***	-1.798
	(0.12)	(0.12)	(0.12)	(0.16)	(0.84)	(0.19)	(0.18)	(1.60)
HHI	-0.975***	-0.683***	-0.976***	-0.102	-2.18	0.921***	0.746***	3.041
	(0.14)	(0.14)	(0.14)	(0.17)	(1.38)	(0.19)	(0.18)	(1.92)
Ind. Sales. Growth Rate	-1.243***	-1.132***	-1.254***	-0.827***	0.99	-1.222***	-1.169***	3.511**
	(0.10)	(0.10)	(0.10)	(0.13)	(0.74)	(0.15)	(0.15)	(1.37)
Liquidity		1.509***						3.669***
		(0.05)						(1.30)
LT Debt/Tot. Liab.			0.134***					1.443*
			(0.04)					(0.80)
Int. Cov. Ratio				-0.491***				-0.564***
				(0.01)				(0.19)
Own. Sh. of Top Exec.					-0.054***			-0.139**
					(0.01)			(0.06)
Bankruptcy Risk						0.480***		-0.51
						(0.06)		(0.88)
Business Risk							0.449	1.779
							(0.34)	(4.92)
Constant	-0.801***	0.17	-0.896***	2.164***	11.551***	3.145***	3.204***	8.285
	(0.27)	(0.27)	(0.27)	(0.42)	(2.43)	(0.47)	(0.42)	(7.11)
Pseudo-R^2	0.055	0.068	0.055	0.090	0.138	0.061	0.057	0.171
Number of Obs.	77,753	77,753	77,739	56,122	2,884	31,981	36,265	734

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 7 (b): Regression Results – Without the Largest 20% of the Firms in Each Industry and Year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.236***	-0.234***	-0.237***	-0.217***	-0.707***	-0.305***	-0.269***	-0.394**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.07)	(0.01)	(0.01)	(0.19)
Log (Firm Age)	0.559***	0.615***	0.560***	0.566***	0.558***	0.287***	0.325***	-0.024
	(0.02)	(0.02)	(0.02)	(0.02)	(0.13)	(0.04)	(0.03)	(0.64)
Tangibility	-0.197***	0.322***	-0.195***	0.268***	-0.835**	0.317***	0.280***	-1.135
	(0.05)	(0.05)	(0.05)	(0.06)	(0.42)	(0.08)	(0.07)	(0.83)
Profitability	-0.054***	-0.037***	-0.054***	-0.108***	-0.108**	-0.125***	-0.133***	-1.269
	(0.00)	(0.00)	(0.00)	(0.02)	(0.05)	(0.01)	(0.01)	(1.61)
Tobin's q	-0.515**	-2.055***	-0.515**	-3.823***	-8.463***	-4.547***	-5.064***	-3.605
	(0.25)	(0.26)	(0.26)	(0.42)	(2.24)	(0.47)	(0.43)	(7.58)
Ind. Lev. Ratio	0.350***	0.457***	0.350***	0.515***	-1.216	1.139***	1.375***	-0.348
	(0.13)	(0.13)	(0.13)	(0.17)	(0.87)	(0.20)	(0.19)	(1.75)
HHI	-0.820***	-0.534***	-0.813***	0.06	-1.345	1.125***	0.943***	3.833*
	(0.15)	(0.15)	(0.15)	(0.18)	(1.38)	(0.20)	(0.19)	(2.04)
Ind. Sales. Growth Rate	-1.231***	-1.122***	-1.232***	-0.870***	0.968	-1.281***	-1.209***	4.162***
	(0.11)	(0.11)	(0.11)	(0.14)	(0.79)	(0.16)	(0.15)	(1.55)
Liquidity		1.418***						3.350**
		(0.05)						(1.44)
LT Debt/Tot. Liab.			-0.005					1.559*
			(0.05)					(0.88)
Int. Cov. Ratio				-0.468***				-0.570***
				(0.01)				(0.20)
Own. Sh. of Top Exec.					-0.050***			-0.121**
					(0.01)			(0.05)
Bankruptcy Risk						0.477***		-0.356
						(0.07)		(0.89)
Business Risk							0.673**	0.208
							(0.34)	(5.93)
Constant	-1.473***	-0.561**	-1.472***	1.964***	10.429***	2.588***	2.677***	4.833
	(0.28)	(0.28)	(0.28)	(0.43)	(2.59)	(0.49)	(0.44)	(8.06)
Pseudo-R^2	0.051	0.062	0.051	0.086	0.124	0.053	0.049	0.156
Number of Obs.	67,867	67,867	67,853	47,527	2,174	26,642	30,548	502

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 8: Regression Results – Excessive Continuation is Defined Using 'ROA < RF for 3 Consecutive Years' Rule

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.120***	-0.116***	-0.143***	-0.076***	-0.486***	-0.031***	-0.038***	-0.573***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.04)	(0.01)	(0.01)	(0.10)
Log (Firm Age)	0.642***	0.661***	0.669***	0.716***	0.470***	0.009	0.008	-0.141
	(0.01)	(0.01)	(0.01)	(0.01)	(0.09)	(0.02)	(0.02)	(0.40)
Tangibility	0.425***	0.588***	0.132***	0.523***	0.235	0.580***	0.730***	0.486
	(0.03)	(0.04)	(0.04)	(0.04)	(0.25)	(0.05)	(0.05)	(0.52)
Profitability	-0.055***	-0.047***	-0.056***	-0.036**	-0.147***	-0.135***	-0.206***	-2.917**
	(0.00)	(0.00)	(0.00)	(0.02)	(0.05)	(0.01)	(0.01)	(1.32)
Tobin's q	-8.662***	-9.257***	-8.142***	-11.025***	-13.280***	-13.786***	-11.623***	-2.434
	(0.20)	(0.21)	(0.20)	(0.29)	(1.69)	(0.34)	(0.32)	(4.98)
Ind. Lev. Ratio	1.198***	1.246***	1.158***	0.900***	1.083*	2.128***	2.082***	2.333**
	(0.09)	(0.09)	(0.09)	(0.11)	(0.59)	(0.13)	(0.12)	(1.11)
HHI	-0.042	0.043	-0.063	0.367***	-2.955***	0.780***	0.588***	-0.935
	(0.11)	(0.11)	(0.11)	(0.12)	(1.07)	(0.14)	(0.13)	(1.61)
Ind. Sales. Growth Rate	-0.778***	-0.743***	-0.822***	-0.432***	-0.268	-1.216***	-1.156***	2.063**
	(0.08)	(0.08)	(0.08)	(0.09)	(0.54)	(0.11)	(0.10)	(1.02)
Liquidity		0.595***						4.103***
		(0.05)						(1.09)
LT Debt/Tot. Liab.			0.798***					0.944
			(0.03)					(0.63)
Int. Cov. Ratio				-0.594***				-0.863***
				(0.01)				(0.16)
Own. Sh. of Top Exec.					-0.020***			0.0001
					(0.01)			(0.01)
Bankruptcy Risk						0.488***		0.808
						(0.05)		(0.58)
Business Risk							-6.745***	-20.246***
							(0.35)	(6.16)
Constant	6.079***	6.433***	5.459***	9.199***	13.228***	12.085***	10.213***	5.604
	(0.21)	(0.22)	(0.22)	(0.30)	(1.88)	(0.35)	(0.32)	(5.33)
Pseudo-R^2	0.068	0.069	0.073	0.149	0.094	0.063	0.064	0.245
Number of Obs.	87,553	87,552	87,539	65,317	3,486	39,197	43,682	1,026

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 9: Regression Results – Excessive Continuation is Defined Using 'ROE < Industry Median for 3 Consecutive Years' Rule

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.212***	-0.205***	-0.216***	-0.156***	-0.531***	-0.257***	-0.249***	-0.698***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.04)	(0.01)	(0.01)	(0.09)
Log (Firm Age)	0.558***	0.606***	0.561***	0.539***	0.553***	0.621***	0.626***	0.169
	(0.01)	(0.01)	(0.01)	(0.02)	(0.08)	(0.03)	(0.03)	(0.38)
Tangibility	-0.385***	0.003	-0.431***	-0.157***	-0.167	-0.023	0.039	-0.391
	(0.04)	(0.04)	(0.04)	(0.05)	(0.23)	(0.07)	(0.06)	(0.49)
Profitability	-0.056***	-0.041***	-0.056***	-0.131***	-0.164***	-0.144***	-0.157***	-0.276
	(0.00)	(0.00)	(0.00)	(0.02)	(0.06)	(0.01)	(0.01)	(1.02)
Tobin's q	-5.816***	-7.115***	-5.731***	-10.452***	-14.982***	-12.718***	-12.003***	-14.643***
	(0.22)	(0.23)	(0.22)	(0.34)	(1.58)	(0.41)	(0.38)	(4.60)
Ind. Lev. Ratio	1.926***	2.033***	1.920***	2.359***	0.486	3.044***	3.153***	1.925*
	(0.11)	(0.11)	(0.11)	(0.13)	(0.54)	(0.16)	(0.15)	(1.02)
HHI	-1.894***	-1.694***	-1.892***	-1.194***	-0.146	-0.839***	-1.022***	1.731
	(0.13)	(0.13)	(0.13)	(0.15)	(0.84)	(0.18)	(0.17)	(1.33)
Ind. Sales. Growth Rate	-0.551***	-0.460***	-0.559***	-0.026	0.844*	0.149	0.075	1.974**
	(0.09)	(0.09)	(0.09)	(0.11)	(0.50)	(0.13)	(0.13)	(0.93)
Liquidity		1.229***						3.990***
		(0.05)						(0.99)
LT Debt/Tot. Liab.			0.122***					-0.206
			(0.04)					(0.59)
Int. Cov. Ratio				-0.327***				-0.890***
				(0.01)				(0.15)
Own. Sh. of Top Exec.					-0.023***			-0.030*
					(0.01)			(0.02)
Bankruptcy Risk						0.480***		-0.77
						(0.06)		(0.64)
Business Risk							-1.574***	-16.210***
							(0.36)	(5.84)
Constant	3.185***	3.939***	3.090***	7.636***	15.556***	8.917***	8.164***	18.967***
	(0.24)	(0.24)	(0.24)	(0.34)	(1.76)	(0.42)	(0.38)	(4.91)
Pseudo-R^2	0.058	0.066	0.058	0.087	0.109	0.084	0.081	0.242
Number of Obs.	87,553	87,552	87,539	65,317	3,486	39,197	43,682	1,026

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 10: Regression Results – Excessive Continuation is Defined Using 'ROA < Industry Median for 3 Consecutive Years' Rule

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (TA)	-0.154***	-0.149***	-0.176***	-0.081***	-0.355***	-0.158***	-0.158***	-0.510***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.04)	(0.01)	(0.01)	(0.08)
Log (Firm Age)	0.534***	0.563***	0.554***	0.553***	0.591***	0.498***	0.419***	0.325
	(0.01)	(0.01)	(0.01)	(0.02)	(0.08)	(0.03)	(0.03)	(0.36)
Tangibility	-0.326***	-0.082*	-0.593***	-0.243***	-0.04	-0.198***	-0.053	-0.597
	(0.04)	(0.04)	(0.04)	(0.05)	(0.23)	(0.06)	(0.06)	(0.45)
Profitability	-0.059***	-0.049***	-0.059***	-0.069***	-0.134***	-0.148***	-0.185***	0.014
	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.01)	(0.01)	(0.96)
Tobin's q	-5.152***	-5.989***	-4.663***	-8.018***	-14.812***	-10.120***	-9.629***	-9.072**
	(0.22)	(0.23)	(0.22)	(0.34)	(1.57)	(0.40)	(0.38)	(4.31)
Ind. Lev. Ratio	2.227***	2.299***	2.197***	2.436***	1.723***	3.322***	3.455***	3.356***
	(0.11)	(0.11)	(0.11)	(0.13)	(0.52)	(0.16)	(0.15)	(0.96)
HHI	-1.908***	-1.777***	-1.931***	-1.375***	-0.948	-1.213***	-1.354***	0.001
	(0.13)	(0.13)	(0.13)	(0.15)	(0.86)	(0.17)	(0.17)	(1.32)
Ind. Sales. Growth Rate	-0.613***	-0.556***	-0.652***	-0.055	0.597	-0.073	-0.114	1.926**
	(0.09)	(0.09)	(0.09)	(0.11)	(0.49)	(0.13)	(0.12)	(0.88)
Liquidity		0.805***						1.921**
		(0.05)						(0.98)
LT Debt/Tot. Liab.			0.710***					-0.311
			(0.04)					(0.57)
Int. Cov. Ratio				-0.578***				-1.091***
				(0.01)				(0.15)
Own. Sh. of Top Exec.					-0.019***			-0.001
					(0.01)			(0.01)
Bankruptcy Risk						1.122***		-0.332
						(0.05)		(0.56)
Business Risk							-4.048***	-14.271***
							(0.39)	(5.31)
Constant	2.135***	2.622***	1.568***	5.294***	13.356***	6.186***	6.046***	11.406**
	(0.24)	(0.24)	(0.24)	(0.35)	(1.74)	(0.41)	(0.37)	(4.58)
Pseudo-R^2	0.048	0.051	0.052	0.112	0.082	0.07	0.059	0.223
Number of Obs.	87,553	87,552	87,539	65,317	3,486	39,197	43,682	1,026

All coefficients are in the form of a logarithm-of-odds ratio. In every regression the dependent variable is a dummy variable that takes the value 1 if a firm is continuing excessively, 0 otherwise. To minimize the impact of possibly spurious outliers, data on all non-categorical variables are winsorized at the 0.01 level. Standard errors are reported in parentheses. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

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