RIETI Discussion Paper Series 21-E-091

Population Aging and Small Business Exits

XU, Peng
Hosei University

RIETI
Research Institute of Economy, Trade & Industry, IAA

The Research Institute of Economy, Trade and Industry
https://www.rieti.go.jp/en/

RIETI Discussion Paper Series 21-E-091
November 2021

Population Aging and Small Business Exits*

Peng Xu (Hosei Univ.)

Abstract

Japan has been experiencing substantial growth in the proportion of their elderly population due to historically low fertility. Aging has strong adverse impacts on economic growth, productivity, entrepreneurship, and technology adoption. In this study, we investigate the effect of population aging as well as the effect of macro factors on corporate exits of small businesses. Economically inefficient small firms are more likely to exit the market via business closures or bankruptcies, larger insolvent firms attempt to survive by filing for rehabilitation, and larger underperforming firms seek acquisitions as a flight from loss strategy to avoid a worst-case scenario such as bankruptcy or rehabilitation. All other things being equal, population aging increases acquisitions but decreases forced exits such as rehabilitation and bankruptcies. Though it is well-documented that recent voluntary exits are driven by CEO aging in small business, population aging has no significant effect on business closures of firms operated by aged CEOs. Yen appreciations trigger rehabilitation and this effect is robust. A decline in long-term interest rates especially increases bankruptcies of non-aged CEOs. As for exit routes, population aging significantly decreases the probability of force exits relative to business closures or acquisitions.

Keywords Population aging, Small business, Exit, Voluntary exit, M&A, Rehabilitation, Bankruptcy
JEL Classifications G33 G34 D21 J11 L25

*This study is conducted as a part of the Project "Study Group on Corporate Finance and Firm Dynamics" undertaken at the Research Institute of Economy, Trade and Industry (RIETI). This study utilizes the TSR financial data, which is provided by RIETI. The author is grateful for helpful comments and suggestions by Iichiro Uesugi (Hitotsubashi Univ. & RIETI), Makoto Yano (RIETI and Sophia University) and Discussion Paper seminar participants at RIETI. Financial support from JSPS KAKENHI is also gratefully acknowledged. Any remaining errors are solely the authors' responsibility.

1. Introduction

Japan has been experiencing substantial growth in the size of their older population due to historically low fertility. Aging and low fertility directly reduces the size of labor force. Not only the size of labor force, but population aging can also have a significant adverse impact on productivity, economic growth, consumption growth, investment, and entrepreneurship. Population aging leads to a low economic growth as well as a decline in investment such as the construction of new production facilities, distributing centers, offices and shops that expands industrial capacity. The lack of entrepreneurship implies difficulties in transforming outcomes of innovation to the economy by launching new businesses. Moreover, population aging may hinder technology adoption.

Exiting and entering firms significantly contribute to aggregate productivity. The market entry is triggered by advanced technology, whereas the companies with low productivity due to technology obsolescence exit the market. Poor technological changes attributed population aging may result in low entry and low exit. In other words, both inactive entry and inactive exit are the outcome of population aging. In this paper, we link population aging to small business exits as well as exit routes in Japan. In standard economics, a firm exits if it cannot cover total cost in the long-run. Underperforming firms will reshape businesses to regain profitability, firms facing losses will downsize to eliminate losses, and economically distressed firms will cease entire production. In previous studies, economic shocks trigger a wave of bankruptcies. Population aging decreases technological shocks and this in turn contributes to a decline in bankruptcies.

As investment in new capital formation declines due to poor technological progress in an aging society, growth thorough M&A increases its importance as growth strategies. Through acquisitions, resources including organizational capabilities in underperforming firms are reallocated to outperforming firms. Also, acquisitions play important roles in improving productivity. For owners of underperforming small firms, seeking acquisition can be a strategy of flight from losses, facing structural declines in economic growth and productivity for population

aging. Different from exiting the market, the owners of targets exit from owning a company, and the acquired firms remain in the market. Recently, more small firms in Japan have been opting to acquire other small companies rather than invest in expanding production capacity. Also, the M&A market plays a significant role in matching potential acquirers and exiting CEOs facing difficulties of business succession. Japan has been experiencing increases of M&As for business succession (the 2020 White Paper on Small and Medium Enterprises by the Small and Medium Enterprise Agency[1]). More importantly, through acquisitions businesses are succeeded by the CEOs of acquirers and it is less likely to be constrained by the declining supply of new entrepreneurship due to slow business skill formation attributed to population aging.

Not only population aging, but corporate exit can also be shaped by macro factors such as interest rate, exchange rate and price index. Japanese economy in the last three decades can be characterized as consecutive declines in price index and zero interest rate. To bolster economic growth and price index, Japan has been conducting nonconventional monetary policy measures. Our study offers direct test of the effects of population aging and macro factors on corporate exits of small businesses. Moreover, we control for the share of out-of-court resolution supported by SME Revitalization Support Councils.

Our findings suggest that population aging increases acquisitions but decreases rehabilitations, and bankruptcies. Moreover, the effect of population aging on exit is robust at every CEO age. Though it is well-documented that recent voluntary exits are driven by CEO aging in small business, population aging has no significant effect on business closures of firms operated by aged CEOs. The share of out-of-court resolution supported by SME Revitalization Support Councils especially increases voluntary exits and acquisitions of firms operated by aged CEOs. Bankrupt firms are insolvent, economically distressed, illiquid, and they are larger than voluntary exiting firms. Bankrupt firms are younger. Younger CEOs or elderly CEOs of insolvent small firms are

[1] https://www.chusho.meti.go.jp/sme_english/whitepaper/whitepaper.html

more likely to file for bankruptcy. There is a tendency for younger CEOs, younger firms to seek civil rehabilitation. Macroeconomically yen appreciations trigger rehabilitation and bankruptcies. In comparison, closed firms are less profitable than bankrupt firms and rehabilitation firms. This suggests that business closures are driven by economical distresses. Different from forced exits, solvent but economically distressed smaller firms with high liquidity choose voluntary exits quietly. Also, smaller firms operated by elderly CEOs are more likely to close business.

The businesses of acquired firms are wholly or partially persevered. Acquired firms are much more profitable and much larger than economically distressed closed firms. This is because that there is no value in acquiring an economically distressed firm. Moreover, expensive legal and accounting advice service and financial brokage service fees are not affordable for a small or micro firm even it is profitable. Acquisitions are negatively related to a decline in long term interest rate, and this suggests nonconventional monetary policies might enhance acquisitions. Relative to survival, acquired firms are underperforming. This means that seeking acquisitions is a strategy of flight from losses. Otherwise, such firms would have to file for rehabilitation as losses prolonging. Fling for rehabilitation can be viewed as a hybrid of acquisitions and forced exits. Insolvency, poor operating performance, and illiquidity are the main reasons for rehabilitation or special liquidation. In comparison with bankrupt firms, rehabilitation firms are much larger.

Economically inefficient small firms are more likely to exit the market via business closures or bankruptcies, larger insolvent firms attempt to survive by filing for rehabilitation, and larger underperforming firms seek acquisitions as a failure-avoidance strategy to avoid the worst situation such as bankruptcy or rehabilitation. All things being equal, population aging increases acquisitions but decreases rehabilitations, and bankruptcies. Though it is well-documented that recent voluntary exits are driven by CEO aging in small business, population aging does not increase business closures of firms operated by aged CEOs. Business closures, acquisitions, rehabilitations, and bankruptcies play important roles to regain economic viability. It is the first

for us to link population aging to corporate exits.

Bankruptcy procedures are quite expensive. A corporate bankruptcy of small business is also owner's personal bankruptcy. Given the harshness of Japan's bankruptcy law, bankrupt entrepreneurs lose most personal assets. It is efficient if such worst situations are avoided via acquisitions or closures. Population aging decreases the probability of bankruptcy relative to acquisitions or closures. Exits via acquisitions implies changes in ownership and acquired firms do not exit the market. Also, it would be efficient if resources of closed firms are redeployed before the firms run into economical distresses. For owners of underperforming small firms, seeking acquisition can be a strategy of flight from losses to avoid bankruptcies or rehabilitations. To promote economic dynamics, the key is to enhance small business M&A. However, legal and accounting advice service and financial brokage service for acquisitions are expensive. Particularly, such expensive commissions of M&A and rehabilitation are not affordable for small and medium-sized enterprises. Importantly, business closures are not necessarily inefficient. The redeployment of resources of closed firms suggests that employees, long-term relationships, and facilities are mainly succeeded by suppliers and customers. Recently, Japan has been launching measures such as subsidizing M&A commissions and due diligence fees and measures to enhance redeployment of resources of closed firms. It remains an important topic to examine the effects of such measures.

The remaining of the paper is organized as flows. In Section 2, we review literature on corporate exit routes and population aging and develop hypothesis. Section 3 describes data and section 4 illustrates empirical results. We conclude in section 5.

2. Literature Review

In standard economics, a firm exits if it cannot cover total cost in the long-run. In the real world, underperforming firms will reshape businesses to regain profitability, firms facing losses will downsize to eliminate losses, and economically distressed firms will cease entire production and

exit. Several reasons can be responsible for downsizing or exit such as poor management capabilities, or lower labor productivities, or increasing competition by new entries following deregulations or technological changes, or consecutive declines in demand, or unexpected shocks such as a financial crisis or a pandemic that dramatically triggers declines in sales and profitability.

2.1 Exit Routes: M&A, Voluntary exit, Reorganization and Bankruptcy

In Van Witteloostuijn (1998), seeking acquisition by an unprofitable firm is flight from losses and this is a failure-avoidance strategy to avoid the worst situation such as bankruptcy. M&A plays an important role in reallocating resources from a target to its acquirer. Acquirers are more productive than targets and acquirers retain more productive acquired plants and sell less productive acquired ones (Maksimovic, Phillips, and Prabhala, 2011). Fortune and Mitchell (2012) address acquisitions retain organizational capabilities of struggling firms within markets and thus exit by acquisition represents firm selection but capability adaptation. Balcaen, et al. (2012) show 14% of economically distressed firms in Belgium are acquired, merged, or split[2].

If the potential net proceed from acquisition price minus commissions is not lucrative, a firm can choose voluntary liquidation. In Fleming and Moon (2009), listed firms exited via voluntary liquidation have low asset productivity and poor low market-to-book ratios and high liquidity. High inside ownership, takeover pressure and low leverage suggest proper incentives of the managers of liquidating firms. 44% of economically distressed firms are voluntarily liquidated in Balcaen, et al. (2011). Small firm owners can close businesses for individual reasons such as harvest, retirements without a successor, career changes, divorce, death, illness, or injury of owner CEOs (Harada, 2007; Wennberg et al., 2010; Coad, 2014). Resources such as assets of liquidated listed firms are redeployed for more productive uses (Fleming and Moon, 2009). There are cases

[2] However, targets of M&A are not necessary to be underperforming or economically distressed. For entrepreneurs of high growing young small firms, acquisitions could occur in both gain and loss situations (Wennberg et al, 2010).

that a larger supplier or a larger customer purchased the assets and took in the employees from a liquidated small company (the 2019 White Paper on Small and Medium Enterprises).

In comparison, bankruptcies are forced and insolvencies trigger bankruptcies. It is necessary to shift the control right from the owner of a small firm to the creditors to alleviate conflicts between the owner and the creditors (Aghion and Bolton; 1992). Bankruptcy is a legal form to remove the control right from the CEO of an insolvent firm. Bankruptcy is costly and CEOs of bankrupt firms suffer large income losses relative to non-bankrupt CEOs (Eckbo and Thorburn, 2003). Nonetheless, the Chapter 11 of U.S. bankruptcy code is a debtor-in-possession procedure which allows managers to keep a certain degree of control over the bankrupt firm's assets and operations. Under Swedish Automatic Bankruptcy Auction system, owner-managers of larger private firms may use a prepack auction to maintain control benefits and to enhance their market value as managers with the new owners (Thorburn,2000).

Since an early study by Schary (1991), several studies have distinguished between exit routes (Dimara et al., 2008; Bruyaka and Durand, 2012; Weterings and Marsili, 2015; Fortune and Mitchell, 2012; Cefis and Marsili, 2012; Bhattacharjee et al., 2009; Goktan et al., 2018; Balcaen et al., 2012; Ponikvar et al., 2018). Firm characteristics and CEOS' demographic characteristics such as size, leverage, performance, liquidity, innovative capabilities, firm ages, and CEO ages influence exit routes. Few doubt that high leverage, low liquidity, and small size increase the probability of bankruptcy. Direct and indirect bankruptcy costs are expensive. To avoid such costs, it is more likely that an underperforming and high liquid small firm seeking exit sell or close the business.

2.2 Rehabilitation and Bankruptcy in Japan

In most studies on small business exit, bankruptcy is viewed as piecemeal liquidation. However, it is not necessary to liquidate, more precisely, to sell a bankrupt firm piecemeal. In Sweden, majority of bankrupt firms are sold as a going concern in bankruptcy auction (Thornborn,

2000). Under the U.S. Bankruptcy Code, the Chapter 11 provide a legal procedure for reorganization and the Chapter 7 provide a legal procedure for liquidation. Lemmon, et al. (2009) show the Chapter 11 procedure preserves the going concern value of financially distressed but economically viable firms while selling the assets of economically distressed firms. In Japan, an insolvent firm can choose a legal liquidation procedure under the Bankruptcy Act (*Hasan*), or a legal rehabilitation procedure under the Civil Rehabilitation Act (*Minji Saisei*), or a legal corporate reorganization under the Corporate Reorganization Act (*Kaisha Kousei*). The Corporate Reorganization Act was enacted in 1952 to transplant Corporate Reorganization under Chapter X of the U.S. National Bankruptcy Act of 1938, known as Chandler Act. Under the Bankruptcy Reform Act of 1978, Chapter X and Chapter XI of Chandler Act were combined into a single Chapter 11 of the modern U.S. Bankruptcy Code. Conventionally, the Corporate Reorganization Act has been mainly used by large, listed firms, whereas most small firms file for liquidation under the Bankruptcy Law.

Japan launched the Civil Rehabilitation Act in 2000 to provide a debtor-in-possession rehabilitation procedure for small firms in response to increasing corporate bankruptcies since the late 1990s. Meanwhile, the Composition (*Wagi*) Act was abolished. Till 1999, the Composition Act provided a quasi-legal procedure for insolvent small firms to restructure debt and business. The Composition Law required a composition debtor to submit the composition plan together with a composition petition, and security interests were treated as rights of separate satisfaction and could be freely exercised. The Rehabilitation Act is more pro-debtor: there is more time to draft a rehabilitation plan, and the court can impose necessary restrictions on collateral rights.

Previous studies mainly focus on the difference of bankruptcy duration between the Civil Rehabilitation Act compared with the Corporate Reorganization Law (Xu, 2007). We know little about differences between liquidation and rehabilitation in Japan. The Bankruptcy Act and the Civil Rehabilitation Act resemble features of the Chapter 7 and the Chapter 11 of the U.S. Bankruptcy Code.

Recently, TSR documents that among 7,341 companies filed for rehabilitation have available progress of the procedures, 96.1% received an order of commencement of Rehabilitation proceedings, 80.2% of the corporate debtor got their rehabilitation plans approved. 23.3% of proceedings were discontinued or converted to liquidation. Also, TSR reports that out of the companies that applied for civil rehabilitation, about 30% remained in the market including 3.6% of acquisitions, and the remaining subsequently went bankrupt, or, closed businesses, or, unknown. Also, rehabilitation often includes the sponsor agreement with a sponsor company which will acquire a significant part of or whole business in bankruptcy, subject to court approval for rehabilitation plan. Sponsor companies will be selected through auction. TEIKOKU DATABANK examined rehabilitation plans and outcomes of court decisions: 57.6% of rehabilitation companies were with a sponsor, 24.6% independently filed for rehabilitation and 11% submitted a plan of piecemeal liquidation. 70.6% of sponsors were a strategy acquirer, 23.5% were turnaround funds and 5.9% were joint acquisitions by strategic acquirer and turnaround fund.

We can distinguish between rehabilitation and bankruptcy after insolvency. Though both rehabilitation and bankruptcy are forced, the legal frameworks in Japan allow CEOs of insolvent firms to choose rehabilitation procedures to preserve going concern value and organizational capabilities through acquisition or independently. It might be the last chance for flight from losses but most of them eventually go bankrupt. Previous studies show distinct differences in performance and size between the categories of Chapter 7 and Chapter 11 of U.S. bankruptcy code.

2.3 The SME Rehabilitation Support Council

In response to skyrocketing increases in small business failures in the late 1990s, Japan launched the Act on Special Measures for Industrial Revitalization to enhance corporate viability in 1999. It was considered a time-limited law until the end of March 2003, and it was revised and extended in 2003, 2007. In 2009, the Act was renamed as Act on Special Measures for Industrial

Revitalization and Innovation of Industrial Activities. In 2013, the Act was replaced by the Act on Strengthening Industrial Competitiveness. The SME Revitalization Support Council is an organization established in February 2003 based on the Act to support the revitalization of small and medium-sized enterprises as a fair and neutral third-party organization. In each of the 47 prefectures in Japan, one SME Revitalization Support Council is established with a support organization such as the chamber of commerce and industry that has been certified to provide SME revitalization support services as the trustee organization.

At each SME Revitalization Support Council, specialists with knowledge and experience in business revitalization such as former bank officers, certified public accountants, tax accountants, lawyers, small business diagnosticians are stationed as project managers and assistant managers to provide consultation to small firms in distress. They provide advice on solutions, introduce support measures and support organizations, and in some cases, introduce lawyers. In cases with business potentials, support is provided for the formulation of rehabilitation plans of debt restructuring and business restructuring. Rescheduling of debt is the most frequent debt restructuring but debt forgiveness and debt-equity swaps are very rare. In addition to rescheduling, business transfers or corporate splits are often implemented for prompt rehabilitation[3].

2.4 Population Aging and Corporate Exits

Japan's fertility rate has been falling rapidly. It dropped below the replacement level in the 1970s and the current fertility rate remained one of the lowest in the world. Though Japan's population reached the peak in 2004, the share of aged population has been increasing rapidly (Figure 1). Low fertility and population aging reduces the size of the labor force and causes the pay-as-you-go pension drain. To alleviate this effect, Japan extended the pensionable age in 2004. In 2021, the Law Concerning Stabilization of Employment of Older Persons passed in March

[3] For detail see https://www.chusho.meti.go.jp/keiei/saisei/kyougikai/30071003.pdf

2020 took effect. Such policy measures may partially offset the effect of population aging.

Shrinking population leads to a slower economic growth. The literature of population aging focuses on the effect of aging on the saving rate, investment, and economic growth. Bloom, Cannnig and Fink（2010）calculate that population aging in OECD countries is likely to lead modest declines in the rate of economic growth. In Umeda, Kawamoto, Sakamaki and Hori (2017b), regression results using an international panel dataset suggest that aging leads to lower domestic investment through channels of a decline in the savings rate, and a decline in the expected growth rate. Using a Panel VAR, Aksoy, Basso, Smith and Grasl (2019) estimate that population aging, and low fertility is likely to reduce growth and investment across OECD countries.

Moreover, aging has an adverse effect on labor productivity of workers across the age distribution and this effect is twice of the effect arises from slower labor force growth. Both effects decrease the growth rate of GDP per capita (Maestas, Mullen and Powell, 2016). In a cross-country analysis, Liang, et al. (2018) provide important evidence that population aging decreases the rate of new business formation substantially because aging slows younger people's acquiring business skills. More recently, Fujita and Fujiwara (2021) examine the impacts on consumption, real interest rate, slowdown of TFP growth and shares of female and non-regular workers in Japan.

Aging also changes the age structure of employees and the average age of labor force in listed firms has increased with rapid population aging in Japan. Umeda, Kawamoto, Sakamaki and Hori (2017a) show that investment is likely to be restrained through a channel that increases in average age of employees increase labor costs and worsen profitability. Interestingly, the average age of CEOs in listed firms remains constant. By contrast, more academic and policy concerns focus on the rising share of aged small firm CEOs. It is more likely that an elderly small family business owner in Japan is facing difficulties to get a next generation family member to succeed the company (Tsuruta, 2019). Lack of successors in small firms operated by an elderly CEO may lead to voluntary exits. Xu (2019) and Hong, et al. (2020) find that voluntary exits are positively

corelated with CEO ages.

In Japan, the succession of small family businesses is often by a family member, most often by the eldest son, or by a son-in-law taken into the family. Family business successions are also occupational choices and sectorial allocation of labor force. Different from pre-war culture and social norm, today it is quite free even for the eldest son to choose the most rewarding job rather than to succeed the family business. Previous studies show that it is more likely for a less rewarding, for instance, poor performing, and higher leveraged micro firm to face lack of successors (Tsuruta, 2019). Moreover, the small family business owner chooses to close business with few prospects and less foreseeability rather than to pass it over to the next generation (the 2017 White Paper on Small and Medium Enterprises). Also, Hong, et al. (2020) find that Japanese voluntarily exiting firms are smaller and have lower sales growth.

Xu (2019) provides important evidence that voluntary exiting firms are more economically distressed than bankrupt firms and not surprisingly the voluntary exiting firms have more cash and lower leverage than the bankrupt firms. Therefore, firms considering voluntary exits are deeply economically distressed but solvent micro firms. In other words, voluntary exits can be an efficient mechanism to eliminate economically distressed firms without bankruptcy costs. In comparison, acquired firms are underperforming but they are much larger, lower leveraged and more profitable than voluntary exits. Thus, the M&A market well matches between the exiting CEOs of underperforming firms and potential acquirers to succeed the businesses.

The 2019 White Paper on Small and Medium Enterprises documents a survey on reasons of voluntary exits. 58% of the business owners who closed their businesses answered they had no intention of passing their businesses over to the next generation and the next most common responses were "The future of the business was not foreseeable" (41.6%). In Harada, 2007, the most important reason for voluntary exit was “despairing perception of further business”. For economic reasons, 19.6% answered "The business was not worth taking over" and 19.4% answered "The underlying profitability of the business was low”. Regarding business successions,

19.8% said “There was no qualified successor candidates". If profitable small firms do not have a qualified successor candidate, closing such firms would be great social losses such as destroying employment. The key point is seeking “qualified” successor candidates to successfully succeed companies with prospects.

Without doubts, successful successions of small businesses require entrepreneurships. An entrepreneur with business skills is qualified to succeed a small business successfully. However, population aging deceases entrepreneurship in Liang et al. (2018) and this in turn decreases potential qualified successor candidates. Consequentially, more small firms are facing difficulty to seek a qualified business successor. It is still possible to sell a profitable small firm without a potential qualified successor. However, M&A fees are expensive and micro firms cannot afford M&A expenses. In the 2021 White Paper on Small and Medium Enterprises, about 80% of voluntary exits in 2020 have 0-5 employees.

If seeking acquisition is not the best choice, an older owner CEO without a qualified successor may extend retirement age temporarily if the current income is higher than the reservation wage. Sooner or later, they need to close the businesses upon retirement. Through decreases in entrepreneurship, population aging may increase lack of business successors and thereby may increase voluntary exits. To exit voluntarily, an owner CEO needs cash to repay debt that the company owes. In Tsuruta (2019), small firms without a successor hold more cash. In Xu (2019), voluntarily exiting firms have more cash than firms that are forced to exit through bankruptcies. This suggests small business owner CEOs carefully implement their exit strategies to avoid bankruptcy costs.

The 2019 White Paper on Small and Medium Enterprises shows that only 38.5% of closed firms have employees who need to seek new jobs or to become independent entrepreneurs after closure. We need more information about the age structure of the workforce in the remaining 61.5% of closed firms without any employees to seek jobs after closure. About half of these firms had employees who were reemployed or became independent with the support of managers who

decided to close businesses. Employees of closed firms were mainly re-employed by the suppliers, the customers of closed firms or the industrial peers. 60% of closed firms had long term supplier and customer relationships and 65.6% of such long term relationships were succeeded by the suppliers or the customers, or the industrial peers. About 60% of the closed companies owned business facilities, and 53.6% of owned facilities have been redeployed by industrial peers or executives or employees to start business. Such business closures are virtual business successions by suppliers, customers, or industrial peers. Tough such successions do not take the form of acquisition, closed businesses quite remain in the market. Regardless of the aging of small business CEOs, the voluntary exit rate did not increase until the middle 2016, whereas the exit rate via bankruptcy or rehabilitation has been substantially declining after 2008 (Hong et al., 2000).

In this paper, we link population aging to small business exits and exit routes. Exiting and entering firms significantly contribute to aggregate productivity (Melitz and Polanec, 2015; Hogen et al., 2017; Nakamura et al. 2018). The market entry is triggered by advanced technology, whereas the companies with declining productivity due to technology obsolescence exit the market (Baily et al., 1992; Forster et al., 2001). Poor technological changes attributed population aging may result in both a low market entry rate and a low market exit rate. It is worth to note that inactive entry is also an outcome of population aging. This is consistent with recent declines both in entry and exit. Especially, population aging decreases technological and the lack technological shock contributes to a decline in bankruptcies. In previous studies, adverse shocks such as the global financial crisis, or the pandemic triggers a wave of bankruptcies (Cefis, et al, 2021).

In an economic environment with poor technological changes and decline in productivity due to population aging, investment in new capital formation declines and M&A increases its importance as a growth strategy for outperforming firms. In Nakamura et al. (2018), listed firms in Japan with positive productivity exit the stock market via acquisitions before sales and profits

deteriorating. Underperforming firms seek acquisitions as a strategy of flight from losses. Through acquisitions productivity improves and this yield M&A synergies. Most importantly, acquired firms remain in the market and acquisitions contribute to market share reallocation for surviving firms.

In addition to population aging, corporate exit can also be shaped by macro factors such as interest rate, real exchange rate and price index. Japanese economy in the last three decades can be characterized as consecutive declines in price index and zero interest rate. To bolster economic growth and price index, Japan has been conducting nonconventional monetary policy measures. Young (1995) and Bhattacharjee et al. (2009) examined companies vulnerable to unanticipated rises in interest rates. We control for changes in long-term interest rate, real exchange rate and corporate price index. We know little about the effects of population aging and macro factors on corporate exits.

3. Data

The TSR financial data was collected from the small companies that responded to the White Paper surveys of the Small and Medium Enterprise Agency and converted into panel data using the responded year as a starting point. After the starting point, financial data was updated. The TSR financial data includes balance sheet and income statement, location of firm, firm age, industry as well as information on CEO age.

In addition to financial data, the TSR also provides detailed information on bankruptcy. More precisely, TSR database provides information on insolvency. Insolvency includes bankruptcies supervised by the court such as a petition filed under the Bankruptcy Act, or the Civil Rehabilitation Act, or, the Corporate Reorganization Act, or the Special Liquidation of the Company Act. Additionally, suspensions of transactions with banks are also viewed as insolvency. In Japan, the member banks of a clearing house will impose the disposition of suspension of transactions with a firm that has dishonored bills two times in last six months. All banks can

withdraw loans for the forfeiture of benefit of time by offsetting loans with deposits or by seizing collaterals. Thus, receiving the dispositions of suspension of transactions with banks means the death of a firm. Also, when liabilities exceed assets and business suspension or liquidation proceedings are confirmed, companies that have not taken legal proceedings are counted as insolvencies. Civil Rehabilitation proceedings and the Special Liquidation proceedings are court-driven debtor-in-possession procedures and in the proceedings under the Bankruptcy Act the court appoints a trustee to sell corporate assets and distribute the proceeds to creditors.

The TSR data consists of information on voluntary exit such as business suspension, business closure and dissolution for firms disappeared from TSR database. The TSR data also provides information on mergers and acquisitions. We also include acquisitions through business transfer, sale of share, company split based on TSR corporate overview.

Our population aging data is the share of population aged 65 or more from the statistics on population by age based on the Basic Resident Register System of the Ministry of Internal Affairs and Communications. Long-term interest rate is the yield rate on 10 year Japanese Government Bond downloaded from the website of Mistry of Finance[4]. Corporate price index is the Bank of Japan's Corporate Price Index. We use BIS effective exchange rate indices for exchange rate. The out-of-court share is calculated using data on activities of SME Rehabilitation Support Councils provided by the Small and Medium Enterprise Agency[5] to control for coordinated out-of-court debt restructurings that can be alternative to bankruptcies. For duty of confidentiality concerning private matters, individual financial data on out-of-court rehabilitation supported by SME Rehabilitation Support Councils are not available. This variable is calculated as the change in the number of coordinated rehabilitations over the number of bankruptcies provided by TSR.

Table 1 indicates a decline in rehabilitations and bankruptcies of insolvent small businesses after 2008. Likewise, closures increased around 2008 and decreased after 2009. Acquisitions

[4] https://www.mof.go.jp/english/policy/jgbs/reference/interest_rate/index.htm

[5] https://www.chusho.meti.go.jp/keiei/saisei/kyougikai/index.htm

increased till 2013 and turned to decrease after 2013. Summary statistics are in Table 2. The mean (median) of number of employees of closed firms is 24 (8), compared to the mean (median) of 28 (15) in liquidated insolvent firms. This suggests that smallest firms tend to exit via closing businesses. Also, the profitability of closed firms is slightly inferior compared to bankrupt firms. Especially, closed firms have a higher current ratio than survivals, acquired firms, rehabilitation firms and liquidated insolvent firms. By contrast, acquired firms and rehabilitation firms are much larger than liquidated firms. Acquired firms are underperforming compared to survivals but much more profitable than bankrupt firms and rehabilitation firms.

Both mean and median firm age are 42 years. Closed firms and bankrupt firms are much younger than acquired firms and rehabilitations firms. This suggests the liability of newness that younger firms are more likely to exit the market, though our sample firms consist of few new firms.

4. Empirical Results

We examine the effects of population aging, long-term interest rate, real exchange rate and corporate price index, financial ratios, firm age, and CEO age on survival according to exit route. Our financial ratios include leverage, EBITDA/Assets, Sales/Assets, current ratio, and Fixed assets/Assets ratio. Firm size is measured as the logarithm of (number of employees+1). We include the logarithm of firm age and the logarithm of CEO age. Regional dummy, industry dummy and year dummy are controlled.

Table 3 reports our multinomial logit regression results. We classify exit routes to five categories: survival, voluntary exit, acquisition, rehabilitation and special liquidation, bankruptcy. The category of voluntary exit includes business suspension, business closure and dissolution for reasons of firms disappeared from TSR database. We include business transfer, acquisition of share, merger, and acquisition to the acquisition category. Rehabilitation includes firms filed for rehabilitation as well as firms liquidated under the Special Liquidation of the Company Act. Both

the rehabilitation procedure and the Special Liquidation procedure are a debtor-in-possession procedure and managers of insolvent firms are allowed to keep a certain degree of control over the assets and operation. Originally, the Special Liquidation is aimed to liquidate insolvent firms upon agreements of majority of creditors, initiated by managers. However, TSR documents the transfer of the business to a second company or company split in the Special Liquidation to revitalize and continue the business has become a recent feature[6]. The category of bankruptcy includes firms filed for liquidation, firms received disposition of suspension of bank transactions, liquidated insolvent companies without legal proceedings.

Population Aging and Corporate Exits

In Table 3, population aging has a significant positive effect on acquisition and significant negative effect on the likelihood of exit via rehabilitation and bankruptcies. This suggests that population aging to the decline in corporate exits via rehabilitation or bankruptcy. The effect of population on exit might be driven by the rising share of older CEOs of small firms. To answer this question, we conduct multiple logit regressions by split the sample to the subsample of CEO age below 60 (nonaged CEO subsample) and the subsample of CEO age 61 and older (aged CEO subsample). Table 4 reports the multiple logit regression results for the two subsamples. In both subsamples, population aging significantly decreases the likelihood of bankruptcy. However, population aging does not increase voluntary exits among firms operated by aged CEOs. As an empirical matter, voluntary exits are not driven by population aging.

Regarding changes in long-term interest rate, effective exchange rate and corporate price index, rehabilitation increases during yen appreciation in Table 3, 4. Yen appreciation around the Global Financial Crisis hit Japanese economy and triggered more rehabilitation after. The decline in long-term interest rate increases the probability of acquisitions in Table 3 Also, the decline in

[6] Follow-up investigation of "special liquidation" companies, TSR (https://www.tsr-net.co.jp/news/analysis/20180808_06.html)

long term interest rate increases the probability of bankruptcy especially for nonaged CEOs in Table 3, 4. This might suggest that zero interest rate or nonconventional monetary policy increases acquisitions and bankruptcies. The change in corporate price index is irrelevant to exits in all regressions. The change in out-of-court share is positively associated with voluntary exits and acquisitions especially for aged CEOs. This suggests that the decline in court supervised exits is not driven by the increase in coordinated out-of-court debt restructurings.

CEO Age and Exits

It is more likely for older CEOs to seek voluntary exit probably for non-economic reasons (Harada, 2007). Greenaway et al. (2009) also find that CEO age is significant for the decision of closedown in the 1990s Sweden. The probability of business closure increases with CEO age in firms operated by aged CEOs in Table 4, while CEO age is not significantly associated with the probability of voluntary exit of firms operated by nonaged CEOs. This is consistent with recent studies on voluntary exits of firms operated by CEOs of advanced age without business successors. Harada (2007) documents that aging is the main reason for non-economic forced exit and the health problems (senior managers tend to have) are also associated with non-economic forced exit.

Table 3, 4 indicates that younger CEOs are more likely to run into insolvency and thereby to run into bankruptcies. This is probably because of lack of life experience of young small business owners to avoid failures. By contrast, CEO age in firms operated by older CEO age increases the probability of bankruptcy. This suggests that CEO aging is not only a reason for non-economic forced exit but also a reason for bankruptcy, a form of economic-forced exit. Losses of core human capital due to sudden death or illness of senior CEOs might cause such insolvency liquidation. However, CEO age decreases the probability of acquisition in Table 4, probably because CEOs of advanced age are lack of stamina that is necessary to negotiate a rescue acquisition plan, whereas CEO age is irrelevant to acquisition for nonaged CEOs in Table 4.

Previous empirical evidence is mixed. Holtz-Eakin et al. (1994); Taylor (1999); Bates (1990) show that older entrepreneurs are more likely to exit, whereas Gimeno et al. (1997), Van Praag (2003) and other studies show they are less likely to exit. Kato et al. (2021) find founder's age increases the probability of bankruptcy, whereas in Wennberg et al. (2010) age is not significantly associated with either distress liquidation or harvest liquidation. Also, in Kato et al. (2021) and Wennberg et al. (2010), founders of mature age prefer cash from sales than future profits due to life-time risk preference. Our results suggest that younger CEOs are more likely to run into bankruptcy, CEOs of advanced age are also more likely to exit the market through voluntary business closures or bankruptcy, but elderly CEOs are less likely to seek acquisitions.

Firm Age, Firm Size, and Exits

In previous studies, the liabilities of newness and smallness hinder firm's survival (Cefis et al. 2021). In Table 3, younger firms tend to exit via acquisition, rehabilitation, or insolvency liquidation. This is robust at every CEO age. In previous studies, the liability of newness hinders firm's survival because new firms or young firms are lack of reputation (Sakai et al., 2010), stable relationships with stakeholders (Balcaen et al., 2012), and organizational capabilities (Fortune and Mitchell, 2012). Probability to exit the market is the highest soon after entry but the hazard rate of exit decreases with firm age (Audretsch &Mahmood, 1994; Wagner, 1994; Baldwin & Gorecki, 1991; Mata et al., 1995). Haltiwanger et al. (2008) find that job destruction rates in bankruptcy fall with firm age. Balcaen et al. (2012)'s nested logit approach shows that firm age has a positive impact on the probability of out-of-court exit (voluntary liquidation and M&A), but not on the choice between voluntary liquidation and M&A. In Fortune and Mitchell (2012) older firms are more likely to exit via acquisition relative to closures. Kato et al. (2021) find a robust positive effect of firm age on bankruptcy and voluntary liquidation. There is no robust effect of firm age on the probability of an acquisition or merger in Astebro and Winter (2012), however.

Larger firms have more resources that help them to survive when they are facing economic

difficulties such as underperformance and distresses (Cefis et al., 2021). More financial resources are particularly necessary to afford expensive legal fees and financial service fees of M&A or reorganization. Larger firms have high notability and have more potential acquirers (Diamond and Verrecchia 1991). Moreover, large firms are more transparent for higher quality of financial statements and many sources of information (Bharath et al. 2007; Zeghal 1984) and thereby due diligence of M&A costs are lower.

As mentioned in Cefis et al. (2021), small firms are more likely to operate below the minimum efficient scale and therefore more likely to exit the market rather than to downsize and remain in the market through acquisition (Evans, 1987; Hall,1987). Cefis and Marsili (2006) find that young and small firms have a high hazard rate of exit. Relative to survival, the probability of acquisition increases with size. It is consistent with Fortune and Mitchell (2012), Kato et al. (2021), Coad and Kato (2020) on exit routes of struggling firms or new firms. In Balcaen et al. (2012), the likelihood of M&A compared to voluntary liquidation increases with firm size, conditional on not going bankrupt. Wennberg et al. (2010) find that smaller distressed new firms tend to exit through sales of firms compared with the higher likelihood of harvest sales of larger firms.

We contribute to the literature by differentiating between rehabilitation and liquidation of insolvency firms. Rehabilitation firms are much larger relative to voluntary exit. In Bris, et al. (2006), the median Chapter 11 case was about 10 times larger than the typical Chapter 7 case. Also, larger firms are more likely to reorganize rather than be liquidated or acquired in Denis and Rogers (2007) and Barniv et al. (2002). Firm size is critical to discriminate between reorganization (or rehabilitation) and liquidation in bankruptcy. It is likely that larger firms may be more costly to liquidate or sell due to larger asset fire sale costs or financing constraints of potential buyers (Aghion et al., 1992). Thorborn (2000) shows that direct costs have a significant fixed component and are lower for piecemeal liquidations. Bris, et al. (2006) show the direct costs of Chapter 11 are much more expensive than Chapter 7 costs.

The following example suggests, the costs filing for rehabilitation is not affordable for a small or micro firm. If an insolvent micro firm has debt of 50 million yen, the costs to file for rehabilitation include a 3 million fixed court fee, a 3.6 million fixed attorney retainer fee and 7.2 million yen contingency fee. Intuitively, it is less likely that pre-bankruptcy cash accounts for more than 27.6% of liability because insolvent micro firms are generally illiquid. For a larger firm with 5 billion yen debt, the total costs of rehabilitation procedure are the sum of a 6 million fixed court fee, a 7.2 million fixed attorney retainer fee and 14.4 million yen contingency fee. If cash accounts for 1% of assets, such a firm can pay the costs for rehabilitation. The costs for liquidation are much more affordable— a 0.7 million yen minimum trustee fee and 0.5 million yen attorney retainer fee. Our results suggest that only larger insolvent firms can afford rehabilitation in Japan.

In sum, either M&A, or rehabilitation, or even bankruptcy is not affordable for small firms. Small firms tend to exit the market through closure or through bankruptcy. Larger firms tend to exit via acquisition or rehabilitation. The liabilities of newness and smallness are robust at any age of CEO, as shown in Table 4 and 5.

Performance and Routes of Exit

It is efficient to eliminate economically inefficient firms and to preserve economically viable firms. Now we investigate the effects of operating performance, leverage, and liquidity on exit pattern. High leverage, low Fixed Assets/Assets ratio and poor operating performance increase the likelihood of voluntary exit in Table 3. High liquidity is critical especially for voluntary exit of firms operated by aged CEOs in Table 4. The likelihood of voluntary exit increases with poor operating performance. Especially, nonaged CEOs are more likely to close businesses with lower sales assets turnover ratios. Relative to closures, the likelihood of rehabilitation, bankruptcy decreases with profitability and leverage but increases with sales assets turnover and liquidity in Table 5, 6. The likelihood of acquisition increases with operating performance and decreases with liquidity, relative to closure. Though closed firms are solvent and liquid, economically they are

less efficient than acquired firms and insolvent firms.

Acquired firms are higher leveraged, underperforming and more illiquid than survivals in Table 3. This is consistent with Van Witteloostuijn (1998) that seeking acquisition by an unprofitable firm is flight from losses. In Japan, such acquisitions are viewed as rescue mergers (Kubo and Saito,2012; Coda and Kato, 2018). Different from closures, rehabilitation, and bankruptcy, exit via acquisitions implies changes in ownership and acquired firms do not exit the market. In this sense, acquisition is viewed positive in contrast to the other forms of exit such as including closure and forced exit including insolvency rehabilitation and insolvency liquidation (Coad, 2014). Recently, more studies have investigated the influences of resources such as innovation, growth opportunities, organizational capabilities, and scale efficiency on the likelihood of acquisition compared to closure (Cotei & Farhat, 2018; Fortune & Mitchell, 2012), Dimara et al., 2008; Kato et al., 2021).

To gauge the difference in leverage, operating performance, and liquidity between acquisition of underperforming firms and other forms of exit. As shown in Table 7,8, acquired firms have better operating performance compared to closed firms. Leverage differentiate acquisition from insolvency, while there is no difference in leverage between closed firms and acquired firms. Acquired firms are more likely more illiquid than closed firms but are more liquid than insolvent firms in terms of current ratio. Operating profitability (EBITDA/Assets) is not different between acquired firms and insolvent firms, but acquired firms are more efficient than closed firms and insolvent firms in terms of sales assets turnover ratio.

Acquisition can be interpreted as early actions such as business transfer, seeking external equity financing and M&A to avoid insolvency. Most importantly, acquisition preserve the going concern value of underperforming firms that are worthy to preserve compared to closure and insolvent firms. Such actions of flight from losses may decrease subsequent bankruptcy due to insolvency.

5. Conclusions

Our study offers direct test of the effect of population aging as well as the effect of macro factors on corporate exits of small businesses. Economically inefficient small firms are more likely to exit the market via business closures or bankruptcies, larger insolvent firms attempt to survive by filing for rehabilitation, and larger underperforming firms seek acquisitions as a flight form losses strategy to avoid the worst situation such as bankruptcy or rehabilitation. All other things being equal, population aging increases acquisitions but decreases rehabilitations and bankruptcies. The effect of population on exit is not driven by the rising share of older CEOs of small firms and population aging decreases exits at every CEO age. Though it is well-documented that such voluntary exits are driven by CEO aging in small business, population aging does not increase business closures of firms operated by aged CEOs. The yen appreciations trigger rehabilitation and a decline in long-term interest rate increases acquisitions. As for exit routes, population aging decreases the probability of bankruptcy relative to business closures or acquisitions especially in firms operated by aged CEOs. M&A or rehabilitation is not affordable for small and micro firms and small firms tend to exit the market through closure or through bankruptcy. Though closed firms are solvent, economically they are less efficient than acquired firms and insolvent firms. Acquisition preserves the going concern value of underperforming firms that are worthy to preserve compared to closure and insolvent firms. High leverage and illiquidity lead to rehabilitation and bankruptcies.

It is efficient if the worst situations such as costly rehabilitation and bankruptcy are avoided via acquisitions or closures. To promote economic metabolism, the key is to enhance small business M&A and efficient redeployment of resources of closed firms. It remains an important topic to examine the effects of measures subsidizing M&A commissions and due diligence fees and measures to enhance redeployment of resources of closed firms on exit routes.

References

Aga, G., Francis, D. As the market churns: productivity and firm exit in developing countries. Small Bus Econ 49, 379–403 (2017). https://doi.org/10.1007/s11187-016-9817-7

Aghion, P., & Bolton, P. (1992). An incomplete contracts approach to financial contracting. Review of Economic Studies, 59, 473-494

Aksoy, Basso, Smith and Grast (2015), "Demographic structures and macroeconomic trends," Documentos de Trabajo（ Working Paper） No,1528, BANCO DE ESPANA.

Astebro, T., & Winter, J. K. (2012). More than a dummy: The probability of failure, survival and acquisition of firms in financial distress. European Management Review 9 (1), 1-17

Audretsch, D. B., & Mahmood, T. (1994). The rate of hazard confronting new firms and plants in U.S. manufacturing. Review of Industrial Organization, 9, 41–56.

Baldwin, J. R., & Gorecki, P. K. (1991). Firm entry and exit in the Canadian manufacturing sector, 1970–1982. Canadian Journal of Economics, 24, 300–323.

Balcaen, S., Manigart, S., & Ooghe, H. (2011). From distress to exit: Determinants of the time to exit. Journal of Evolutionary Economics, 21(3), 407–446.

Balcaen, S., Manigart, S., Buyze, J., Ooghe, H. (2012). Firm exit after distress: Differentiating between bankruptcy, voluntary liquidation and M&A. Small Business Economics, 39(4), 949–975.

Beaudin, L., and Huang, J.-C. (2014). Weather conditions and outdoor recreation: A study of New England ski areas. Ecological Economics, 106: 56–68.

Bates, T., (1990). Entrepreneur human capital and small business longevity. The Review of Economics and Statistics 72(4), 551-559.

Bharath, S., Dahiya, S., Saunders, A., & Srinivasan, A. (2007). Lending relationships and loan contract terms: Does size matter? Journal of Financial Economics, 85(2), 368–419.

Bhattacharjee, A., Higson, C., Holly, S., Kattuman, P. (2009). Macroeconomic instability and business exit: Determinants of failures and acquisitions of UK firms. Economica, 76(301),

108–131.

Bloom, D.E., Cannnig,D., & Fink, G. (2010）Implications of population aging for economic growth," Oxford Review of Economic Policy, 26（4）, pp. 583–612.

Bris, A., Welch, I., & Zhu, N. (2006). The costs of bankruptcy: Chapter 7 liquidation versus Chapter 11 reorganization. Journal of Finance, 61(3), 1253–1303.

Bruyaka, O., Durand, R. (2012). Sell-off or shut-down? Alliance portfolio diversity and two types of high-tech firms' exit. Strategic Organization, 10(1), 7–30.

Cefis, E., Marsili, O. (2012). Going, going, gone. Exit forms and the innovative capabilities of firms. Research Policy, 41(5), 795–807.

Cefis, E., Bettinelli, C. Coad, A. & Marsili, O. (2021) Understanding firm exit: a systematic literature review, Small Business Economics, https://doi.org/10.1007/s11187-021-00480-x

Coad, A. (2014). Death is not a success: Reflections on business exit. International Small Business Journal, 32(7), 721–732.

Coad, A. & Kato, M. (2020) Growth paths and routes to exit: 'shadow of death' effects for new firms in Japan. Small Business Economics, DOI: 10.1007/s11187-020-00341-z

Cotei, C., Farhat, J. (2018). The M&A exit outcomes of new, young firms. Small Business Economics, 50(3), 545–567.

Dessaint, O., Golubov, A., & Volpin, P. (2017). Employment protection and takeovers. Journal of Financial Economics, 125(2), 369–388.

Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. Journal of Finance, 46(4), 1325–1359.

Dimara, E., Skuras, D., Tsekouras, K., Tzelepis, D. (2008). Productive efficiency and firm exit in the food sector. Food Policy, 33(2), 185–196.

Eckbo, B. E., & Thorburn, K. S. (2003). Control benefits and CEO discipline in automatic bankruptcy auctions. Journal of Financial Economics, 69 (1), 227-258.

Evans, D. S. (1987). The relationship between firm growth, size, and age: Estimates for 100 manufacturing industries. Journal of Industrial Economics, 35, 567–581.

Fortune, A., Mitchell,W. (2012). Unpacking firm exit at the firm and industry levels: The adaptation and selection of firm capabilities. Strategic Management Journal, 33(7), 794–819.

Fleming, M. J., & Moon, J. J. (1995). Preserving firm value through exit: The case of voluntary liquidations. Federal Reserve Bank of New York staff report no. 8.

Fujita, S., & Fujiwara, I. (2021). Aging and the real interest rate in Japan: A labor market channel. Working Papers 21-23, Federal Reserve Bank of Philadelphia.

Gimeno, J., Folta, T.B., Cooper, A.C.,. Woo, C.Y., 1997. Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. Administrative Science Quarterly 42 (4), 750-783.

Goktan, M. S., Kieschnick, R., Moussawi, R. (2018). Corporate governance and firm survival. Financial Review, 53(2), 209–253.

Hansen, M. E., Ziebarth, N. L. (2017). Credit relationships and business bankruptcy during the great depression." American Economic Journal: Macroeconomics, 9 (2): 228-55. DOI: 10.1257/mac.20150218

Harada, N. (2007). Which firms exit and why? An analysis of small firm exits in Japan. Small Business Economics, 29(4): 401–414.

Haltiwanger, J., Jarmin, R., & Miranda, J. (2008). Business formation and dynamics by business age: Results from the new business dynamics statistics. Center for Economic Studies: Mimeo.

Hogen, Y., K. Miura, and K. Takahashi (2017). Large Firm Dynamics and Secular Stagnation: Evidence from Japan and the U.S. Bank of Japan Working Paper Series, No. 17-E-8.

Holtz-Eakin, D., Joulfaian, D., & Rosen, H.S., (1994). Sticking it out, Entrepreneurial survival and liquidity constraints. The Journal of Political Economy 102 (1), 53-75

Kato, M., Onishi, K., & Honjo, Y. (2021). Does patenting always help new firm survival? Understanding heterogeneity among exit routes, Small Business Economics,

https://doi.org/10.1007/s11187-021-00481-w

Lemmon, M., Ma, Y. Y., & Tashjian, E. (2009). Survival of the fittest? Financial and economic distress and restructuring decisions in Chapter 11. Paper presented at the Third Singapore Conference on Finance, Singapore.

Liang, J., Wang, H., & Lazear, E. (2018) Demographics and Entrepreneurship Journal of Political Economy 126 (1), 140 - 196

Mata, J., P. Portugal, P. Guimaraes (1995), The survival of new plants: Start-up conditions and post-entry evolution, International Journal of Industrial Organization, 13, 459–481.

Maksimovic, V., Phillips, G., & Prabhala, N. R. (2011). Post-merger restructuring and the boundaries of the firm. Journal of Financial Economics, 102, 317–343.

Maestas, N., Mullen, K. & Powell, D. (2016) The Effect of population aging on economic growth, the labor force and productivity. NBER Working Paper No. w22452

Melitz, J. M. and S. Polanec (2015), "Dynamic Olley-Pakes Productivity Decomposition with Entry and Exit," RAND Journal of Economics, 46(2), 362-375.

Ponikvar, N., Kejžar, K. Z., Peljhan, D. (2018). The role of financial constraints for alternative firm exit modes. Small Business Economics, 51(1), 85–103.

Nakamura, K., Kaihatsu, S. and Yagi, T. (2018) Productivity Improvement and Economic Growth. Bank of Japan Working Paper Series, No. 18-E-10.

Sakai, K., Uesugi, I., Watanabe, T. (2010). Firm age and the evolution of borrowing costs: Evidence from Japanese small firms. Journal of Banking and Finance, 34(8), 1970–1981.

Schary, M. A. (1991). The probability of exit. RAND Journal of Economics, 22, 339–353.

Thorburn, K. S. (2000). Bankruptcy auctions: costs, debt recovery, and firm survival, Journal of Financial Economics 58(3), 337-368

Umeda, M., Kawamoto, T., Sakamaki, T., & Hori, M. (2017a) Does the aging of a firms' workforce affect its investment behavior? An analysis using financial panel data of Japanese firms. The Economic Analysis (196), 135-157 (in Japanese)

Umeda, M., Kawamoto, T., Sakamaki, T., & Hori, M. (2017b). Population aging and domestic investment―An analysis using international panel data―, The Economic Analysis (197), 115-133 (in Japanese)

Van Praag, C.M., (2003). Business survival and success of young small business owners. Small Business Economics 21 (1), 1-17.

van Witteloostuijn, A. (1998). Bridging behavioral and economic theories of decline: Organizational inertia, strategic competition and chronic failure. Management Science 44(4), 502- 519.

Wagner, J. (1994). The post-entry performance of new small firms in German manufacturing industries. Journal of Industrial Economics, 42(2), 141–154.

Weterings, A., Marsili, O. (2015). Spatial concentration of industries and new firm exits: Does this relationship differ between exits by closure and by M&A? Regional Studies, 49(1), 44–58.

Wennberg, K., Wiklund, J., DeTienne, D., & Cardon, M. (2010). Reconceptualizing entrepreneurial exit: Divergent exit routes and their drivers. Journal of Business Venturing, 25(4), 361–375.

Xu, Peng (2004) Increasing Bankruptcies and the Legal Reform in Japan, Journal of Restructuring Finance, Vol.1, No. 2, 417 – 434, 2004

Xu, Peng (2007) Corporate Governance in Financial Stress: The New Role of Bankruptcy in Masahiko Aoki, Gregory Jackson, and Hideaki Miyajima, eds. corporate Governance in Japan, Oxford University Press, New York

Young, G. (1995). Company Liquidations, interest rates and debt. Manchester School of Economic and Social Studies Supplement, 63, 57-69

Zeghal, D. (1984). Firm size and the information content of financial statements. Journal of Financial and Quantitative Analysis, 19(3), 299–310.

Figure 1 Population aging

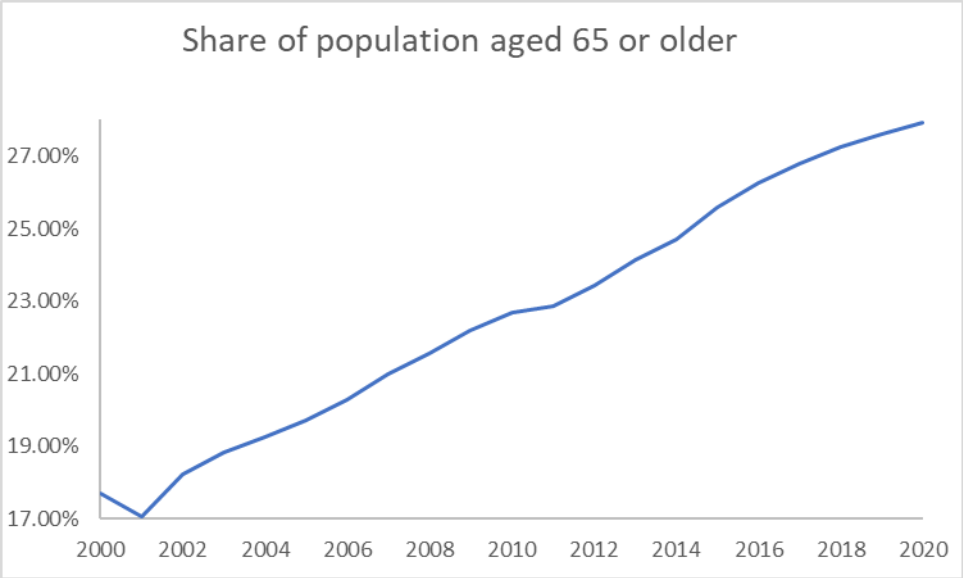

Table 1 Exit routes

Fisca year	Closure	Acquisition	Rehabilitation	Liquidation
2003	24	48	29	143
2004	16	39	14	68
2005	37	86	37	75
2006	44	93	43	141
2007	75	110	83	142
2008	97	145	53	98
2009	93	111	21	89
2010	54	112	21	56
2011	56	112	13	56
2012	38	104	17	47
2013	40	100	5	43
2014	31	85	4	14
2015	12	45	2	8
Total	617	1190	342	980

Table 2 Summary statistics

	All			Survival			Acquisition		
Observations	197,237			194,108			1,190		
Variables	Mean	Madian	S.D.	Mean	Madian	S.D.	Mean	Madian	S.D.
Population aging	0.225	0.227	0.021	0.225	0.227	0.021	0.227	0.227	0.018
Change in 10 year JGB yield	-0.068	-0.131	0.205	-0.068	-0.131	0.205	-0.092	-0.143	0.168
Change in corporate price index	0.583	1.275	2.188	0.580	1.275	2.187	0.748	1.558	2.307
Change in effective exchange rate	-1.838	-2.038	7.555	-1.852	-2.038	7.548	-1.044	-1.511	8.186
Change in out-of-court share	0.010	0.006	0.038	0.010	0.006	0.038	0.013	0.003	0.037
CEO age	58.833	59.833	9.566	58.832	59.833	9.559	58.655	59.750	9.016
Firm age	42.092	41.917	18.319	42.179	42.083	18.307	40.342	39.333	19.798
Employees	214.249	43	1135.302	215.370	44	1142.350	311.079	80	834.195
Leverage	0.674	0.698	0.284	0.671	0.696	0.282	0.723	0.739	0.313
Fixed assets/Assets	0.287	0.256	0.208	0.287	0.256	0.207	0.262	0.212	0.223
ln(employees+1)	3.940	3.784	1.511	3.947	3.807	1.509	4.395	4.394	1.626
EBITDA/Assets	0.042	0.037	0.067	0.042	0.037	0.067	0.036	0.035	0.080
Slaes/Assets	1.498	1.268	0.987	1.498	1.269	0.984	1.632	1.363	1.142
Current Ratio	1.003	0.434	1.703	1.008	0.439	1.703	0.787	0.286	1.645

Table 2 Summary statistics cont'd

	Closed			Rahabilitation			Liquidation		
Observations	617			194,108			980		
Variables	Mean	Madian	S.D.	Mean	Madian	S.D.	Mean	Madian	S.D.
Population aging	0.225	0.227	0.016	0.217	0.216	0.014	0.216	0.216	0.017
Change in 10 year JGB yield	-0.087	-0.137	0.159	-0.037	-0.106	0.198	-0.044	-0.110	0.233
Change in corporate price index	0.704	1.550	2.444	1.187	1.671	2.021	0.694	1.550	2.100
Change in effective exchange rate	0.427	-0.104	8.914	-1.747	-3.308	6.448	-1.562	-3.308	7.299
Change in out-of-court share	0.010	0.003	0.031	0.005	-0.003	0.024	0.009	0.003	0.026
CEO age	61.190	61.500	10.368	57.853	58.792	9.489	58.215	58.750	10.856
Firm age	34.271	34.083	16.612	39.110	38.083	18.384	32.994	32.958	16.308
Employees	23.987	8	48.163	117.304	58	187.545	28.202	15	72.786
Leverage	0.828	0.819	0.463	1.021	0.949	0.267	1.005	0.944	0.282
Fixed assets/Assets	0.234	0.162	0.230	0.321	0.279	0.242	0.270	0.231	0.227
ln(employees+1)	2.424	2.197	1.141	4.064	4.078	1.259	2.820	2.773	0.917
EBITDA/Assets	-0.020	-0.002	0.107	0.005	0.019	0.070	-0.006	0.015	0.079
Slaes/Assets	1.653	1.277	1.388	1.210	1.000	0.913	1.392	1.171	0.981
Current Ratio	1.390	0.317	2.563	0.226	0.114	0.601	0.356	0.122	0.967

Table 3 Base outcome=Survival, All

	All			
VARIABLES	Closed	Acquisition	Rehabilitation	Liquidation
Population aging	4.202	12.74***	-37.20***	-35.02***
	(4.697)	(3.197)	(8.910)	(4.694)
Change in 10 year JGB yield	-0.170	-0.608*	-0.00509	-0.631**
	(0.453)	(0.354)	(0.490)	(0.281)
Change in corporate price index	-0.000578	0.0117	0.0961	0.0147
	(0.0304)	(0.0255)	(0.0629)	(0.0312)
Change in effective exchange rate	0.0165	0.00872	-0.0679***	-0.0144
	(0.0112)	(0.00864)	(0.0184)	(0.0111)
Change in out-of-court share	11.27**	7.427***	-4.630	1.231
	(4.386)	(2.707)	(10.86)	(5.562)
ln(CEO age)	1.244***	-0.0126	-0.668**	-0.391**
	(0.248)	(0.175)	(0.312)	(0.184)
ln(firm age)	0.0129	-0.397***	-0.218**	-0.200***
	(0.0781)	(0.0570)	(0.105)	(0.0596)
Leverage	0.695***	0.758***	3.855***	2.368***
	(0.127)	(0.123)	(0.217)	(0.121)
Fixed assets/Assets	-0.905***	-0.707***	-0.556**	-0.935***
	(0.207)	(0.158)	(0.256)	(0.159)
ln(employees+1)	-0.791***	0.229***	0.317***	-0.392***
	(0.0406)	(0.0213)	(0.0420)	(0.0319)
EBITDA/Assets	-5.801***	-2.141***	-2.540***	-2.827***
	(0.495)	(0.448)	(0.753)	(0.425)
Slaes/Assets	-0.0563	0.0381	-0.705***	-0.549***
	(0.0388)	(0.0307)	(0.0801)	(0.0420)
Current Ratio	0.0506**	-0.0275	-1.178***	-0.542***
	(0.0198)	(0.0240)	(0.212)	(0.0735)
Constant	-9.568***	-8.569***	-12.81	4.222***
	(1.525)	(1.175)	(742.0)	(1.289)
Observations	197,237	197,237	197,237	197,237
Pseudo R-squared	0.121	0.121	0.121	0.121
Log Likelihood	-17677	-17677	-17677	-17677
LR Chi2	4879	4879	4879	4879

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 Base outcome=Survival, nonaged CEOs and aged CEOs

	Nonaged CEOs				Aged CEOs			
VARIABLES	Closed	Acquisition	Rehabilitation	Liquidation	Closed	Acquisition	Rehabilitation	Liquidation
Population aging	1.788	10.67**	-40.74***	-34.37***	4.176	15.04***	-30.01**	-37.26***
	(7.679)	(4.375)	(12.17)	(6.363)	(6.043)	(4.898)	(13.49)	(7.036)
Change in 10 year JGB yield	-0.335	-0.410	0.618	-0.913**	-0.0425	-0.818	-0.872	-0.169
	(0.626)	(0.466)	(0.623)	(0.368)	(0.658)	(0.550)	(0.826)	(0.436)
Change in corporate price index	0.00147	-0.0134	0.124	0.0576	-0.00260	0.0431	0.0527	-0.0291
	(0.0479)	(0.0351)	(0.0823)	(0.0438)	(0.0395)	(0.0375)	(0.0993)	(0.0448)
Change in real exchange rate	0.00597	0.00329	-0.0648***	-0.0360**	0.0241*	0.0136	-0.0712**	0.00820
	(0.0176)	(0.0121)	(0.0239)	(0.0159)	(0.0146)	(0.0125)	(0.0293)	(0.0157)
Change in out-of-court share	12.06	4.222	-5.861	-1.962	11.24**	10.14***	-2.488	5.064
	(8.308)	(3.824)	(15.19)	(7.221)	(5.217)	(3.908)	(15.66)	(8.780)
ln(CEO age)	0.544	0.407	-0.273	-1.257***	2.555***	-1.694***	-0.140	2.432***
	(0.452)	(0.305)	(0.506)	(0.285)	(0.621)	(0.623)	(1.163)	(0.588)
ln(firm age)	-0.00358	-0.432***	-0.247*	-0.244***	0.0230	-0.328***	-0.134	-0.161
	(0.111)	(0.0762)	(0.132)	(0.0762)	(0.112)	(0.0881)	(0.179)	(0.0981)
Leverage	1.177***	0.702***	3.792***	2.675***	0.368**	0.804***	3.917***	2.028***
	(0.200)	(0.178)	(0.298)	(0.167)	(0.166)	(0.171)	(0.321)	(0.176)
Fixed assets/Assets	-1.309***	-0.748***	-0.735**	-0.713***	-0.665**	-0.601***	-0.291	-1.249***
	(0.335)	(0.225)	(0.355)	(0.218)	(0.266)	(0.223)	(0.371)	(0.235)
ln(employees+1)	-0.696***	0.271***	0.391***	-0.339***	-0.856***	0.170***	0.229***	-0.436***
	(0.0614)	(0.0301)	(0.0576)	(0.0441)	(0.0549)	(0.0309)	(0.0634)	(0.0470)
EBITDA/Assets	-5.521***	-2.132***	-2.817***	-2.569***	-5.759***	-2.210***	-2.097*	-2.992***
	(0.735)	(0.603)	(0.988)	(0.558)	(0.672)	(0.671)	(1.174)	(0.659)
Slaes/Assets	-0.127**	0.0414	-0.611***	-0.505***	0.00292	0.0268	-0.898***	-0.599***
	(0.0578)	(0.0408)	(0.0953)	(0.0536)	(0.0522)	(0.0470)	(0.144)	(0.0673)
Current Ratio	0.0298	-0.0859**	-1.070***	-0.532***	0.0549**	0.0156	-1.320***	-0.577***
	(0.0334)	(0.0402)	(0.268)	(0.102)	(0.0250)	(0.0297)	(0.348)	(0.107)
Constant	-6.903***	-9.946***	-11.71	7.077***	-14.66***	-2.097	-15.91	-6.746**
	(2.579)	(1.870)	(418.2)	(1.835)	(3.016)	(2.934)	(683.7)	(2.949)
Observations	100,682	100,682	100,682	100,682	96,555	96,555	96,555	96,555
Pseudo R-squared	0.126	0.126	0.126	0.126	0.125	0.125	0.125	0.125
Log Likelihood	-9087	-9087	-9087	-9087	-8491	-8491	-8491	-8491
LR Chi2	2618	2618	2618	2618	2437	2437	2437	2437

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5 Base outcome=Closed, All CEOs

	All			
VARIABLES	Survival	Acquisition	Rehabilitation	Liquidation
Population aging	-4.202	8.535	-41.40***	-39.22***
	(4.697)	(5.673)	(10.06)	(6.611)
Change in 10 year JGB yield	0.170	-0.437	0.165	-0.461
	(0.453)	(0.574)	(0.666)	(0.530)
Change in corporate price index	0.000578	0.0123	0.0967	0.0153
	(0.0304)	(0.0396)	(0.0697)	(0.0432)
Change in real exchange rate	-0.0165	-0.00778	-0.0844***	-0.0309**
	(0.0112)	(0.0141)	(0.0215)	(0.0156)
Change in out-of-court share	-11.27**	-3.847	-15.90	-10.04
	(4.386)	(5.147)	(11.71)	(7.061)
ln(CEO age)	-1.244***	-1.257***	-1.912***	-1.635***
	(0.248)	(0.303)	(0.397)	(0.306)
ln(firm age)	-0.0129	-0.409***	-0.231*	-0.213**
	(0.0781)	(0.0964)	(0.130)	(0.0973)
Leverage	-0.695***	0.0632	3.160***	1.673***
	(0.127)	(0.176)	(0.250)	(0.174)
Fixed assets/Assets	0.905***	0.199	0.349	-0.0302
	(0.207)	(0.260)	(0.328)	(0.259)
ln(employees+1)	0.791***	1.021***	1.109***	0.399***
	(0.0406)	(0.0458)	(0.0584)	(0.0514)
EBITDA/Assets	5.801***	3.659***	3.260***	2.974***
	(0.495)	(0.665)	(0.898)	(0.646)
Slaes/Assets	0.0563	0.0944*	-0.648***	-0.492***
	(0.0388)	(0.0493)	(0.0888)	(0.0567)
Current Ratio	-0.0506**	-0.0781**	-1.228***	-0.593***
	(0.0198)	(0.0310)	(0.213)	(0.0760)
Constant	9.568***	0.999	-3.237	13.79***
	(1.525)	(1.922)	(742.0)	(1.984)
Observations	197,237	197,237	197,237	197,237
Pseudo R-squared	0.121	0.121	0.121	0.121
Log Likelihood	-17677	-17677	-17677	-17677
LR Chi2	4879	4879	4879	4879

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 Base outcome=Survival, nonaged CEOs and aged CEOs

	Nonaged CEOs				Aged CEOs			
VARIABLES	Survival	Acquisition	Rehabilitation	Liquidation	Survival	Acquisition	Rehabilitation	Liquidation
Population aging	-1.788	8.884	-42.53***	-36.16***	-4.176	10.86	-34.19**	-41.43***
	(7.679)	(8.826)	(14.37)	(9.928)	(6.043)	(7.765)	(14.76)	(9.233)
Change in 10 year JGB yield	0.335	-0.0748	0.953	-0.578	0.0425	-0.776	-0.829	-0.126
	(0.626)	(0.779)	(0.880)	(0.722)	(0.658)	(0.855)	(1.053)	(0.784)
Change in corporate price index	-0.00147	-0.0149	0.123	0.0562	0.00260	0.0457	0.0553	-0.0265
	(0.0479)	(0.0593)	(0.0949)	(0.0643)	(0.0395)	(0.0543)	(0.107)	(0.0592)
Change in real exchange rate	-0.00597	-0.00268	-0.0708**	-0.0420*	-0.0241*	-0.0105	-0.0953***	-0.0159
	(0.0176)	(0.0213)	(0.0296)	(0.0236)	(0.0146)	(0.0192)	(0.0327)	(0.0213)
Change in out-of-court share	-12.06	-7.834	-17.92	-14.02	-11.24**	-1.096	-13.73	-6.174
	(8.308)	(9.137)	(17.30)	(10.97)	(5.217)	(6.507)	(16.50)	(10.19)
ln(CEO age)	-0.544	-0.137	-0.817	-1.801***	-2.555***	-4.249***	-2.695**	-0.122
	(0.452)	(0.544)	(0.676)	(0.530)	(0.621)	(0.877)	(1.316)	(0.849)
ln(firm age)	0.00358	-0.429***	-0.243	-0.241*	-0.0230	-0.351**	-0.157	-0.184
	(0.111)	(0.134)	(0.172)	(0.133)	(0.112)	(0.142)	(0.211)	(0.148)
Leverage	-1.177***	-0.475*	2.616***	1.499***	-0.368**	0.436*	3.549***	1.659***
	(0.200)	(0.267)	(0.357)	(0.258)	(0.166)	(0.238)	(0.361)	(0.240)
Fixed assets/Assets	1.309***	0.561	0.574	0.595	0.665**	0.0647	0.374	-0.583*
	(0.335)	(0.403)	(0.486)	(0.397)	(0.266)	(0.347)	(0.455)	(0.353)
ln(employees+1)	0.696***	0.966***	1.087***	0.357***	0.856***	1.026***	1.086***	0.420***
	(0.0614)	(0.0683)	(0.0840)	(0.0752)	(0.0549)	(0.0629)	(0.0837)	(0.0718)
EBITDA/Assets	5.521***	3.389***	2.704**	2.952***	5.759***	3.548***	3.662***	2.767***
	(0.735)	(0.947)	(1.226)	(0.914)	(0.672)	(0.946)	(1.349)	(0.932)
Slaes/Assets	0.127**	0.168**	-0.484***	-0.379***	-0.00292	0.0239	-0.901***	-0.602***
	(0.0578)	(0.0705)	(0.111)	(0.0780)	(0.0522)	(0.0700)	(0.153)	(0.0845)
Current Ratio	-0.0298	-0.116**	-1.100***	-0.562***	-0.0549**	-0.0393	-1.375***	-0.631***
	(0.0334)	(0.0521)	(0.270)	(0.107)	(0.0250)	(0.0387)	(0.349)	(0.110)
Constant	6.903***	-3.043	-4.808	13.98***	14.66***	12.56***	-1.251	7.913*
	(2.579)	(3.179)	(418.2)	(3.138)	(3.016)	(4.197)	(683.7)	(4.188)
Observations	100,682	100,682	100,682	100,682	96,555	96,555	96,555	96,555
Pseudo R-squared	0.126	0.126	0.126	0.126	0.125	0.125	0.125	0.125
Log Likelihood	-9087	-9087	-9087	-9087	-8491	-8491	-8491	-8491
LR Chi2	2618	2618	2618	2618	2437	2437	2437	2437

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7 Base outcome=acquisition, All CEOs

	All			
VARIABLES	Survival	Acquisition	Rehabilitation	Liquidation
Population aging	-12.74***	-8.535	-49.94***	-47.76***
	(3.197)	(5.673)	(9.458)	(5.670)
Change in 10 year JGB yield	0.608*	0.437	0.603	-0.0237
	(0.354)	(0.574)	(0.603)	(0.450)
Change in corporate price index	-0.0117	-0.0123	0.0844	0.00298
	(0.0255)	(0.0396)	(0.0677)	(0.0401)
Change in real exchange rate	-0.00872	0.00778	-0.0766***	-0.0231*
	(0.00864)	(0.0141)	(0.0203)	(0.0140)
Change in out-of-court share	-7.427***	3.847	-12.06	-6.196
	(2.707)	(5.147)	(11.19)	(6.179)
ln(CEO age)	0.0126	1.257***	-0.656*	-0.379
	(0.175)	(0.303)	(0.357)	(0.253)
ln(firm age)	0.397***	0.409***	0.179	0.197**
	(0.0570)	(0.0964)	(0.119)	(0.0822)
Leverage	-0.758***	-0.0632	3.097***	1.610***
	(0.123)	(0.176)	(0.248)	(0.172)
Fixed assets/Assets	0.707***	-0.199	0.151	-0.229
	(0.158)	(0.260)	(0.300)	(0.224)
ln(employees+1)	-0.229***	-1.021***	0.0878*	-0.622***
	(0.0213)	(0.0458)	(0.0470)	(0.0383)
EBITDA/Assets	2.141***	-3.659***	-0.399	-0.685
	(0.448)	(0.665)	(0.874)	(0.615)
Slaes/Assets	-0.0381	-0.0944*	-0.743***	-0.587***
	(0.0307)	(0.0493)	(0.0857)	(0.0519)
Current Ratio	0.0275	0.0781**	-1.150***	-0.515***
	(0.0240)	(0.0310)	(0.214)	(0.0773)
Constant	8.569***	-0.999	-4.236	12.79***
	(1.175)	(1.922)	(742.0)	(1.740)
Observations	197,237	197,237	197,237	197,237
Pseudo R-squared	0.121	0.121	0.121	0.121
Log Likelihood	-17677	-17677	-17677	-17677
LR Chi2	4879	4879	4879	4879

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8 Base outcome=acquisition, nonaged CEOs and aged CEOs

	Nonaged CEOs				Aged CEOs			
VARIABLES	Survival	Acquisition	Rehabilitation	Liquidation	Survival	Acquisition	Rehabilitation	Liquidation
Population aging	-10.67**	-8.884	-51.41***	-45.05***	-15.04***	-10.86	-45.05***	-52.29***
	(4.375)	(8.826)	(12.92)	(7.710)	(4.898)	(7.765)	(14.34)	(8.560)
Change in 10 year JGB yield	0.410	0.0748	1.028	-0.503	0.818	0.776	-0.0535	0.649
	(0.466)	(0.779)	(0.776)	(0.592)	(0.550)	(0.855)	(0.990)	(0.700)
Change in corporate price index	0.0134	0.0149	0.137	0.0711	-0.0431	-0.0457	0.00955	-0.0722
	(0.0351)	(0.0593)	(0.0893)	(0.0560)	(0.0375)	(0.0543)	(0.106)	(0.0582)
Change in real exchange rate	-0.00329	0.00268	-0.0681**	-0.0393**	-0.0136	0.0105	-0.0848***	-0.00544
	(0.0121)	(0.0213)	(0.0267)	(0.0199)	(0.0125)	(0.0192)	(0.0318)	(0.0200)
Change in out-of-court share	-4.222	7.834	-10.08	-6.184	-10.14***	1.096	-12.63	-5.079
	(3.824)	(9.137)	(15.65)	(8.162)	(3.908)	(6.507)	(16.13)	(9.602)
ln(CEO age)	-0.407	0.137	-0.680	-1.664***	1.694***	4.249***	1.554	4.127***
	(0.305)	(0.544)	(0.590)	(0.416)	(0.623)	(0.877)	(1.317)	(0.854)
ln(firm age)	0.432***	0.429***	0.186	0.188*	0.328***	0.351**	0.194	0.167
	(0.0762)	(0.134)	(0.152)	(0.107)	(0.0881)	(0.142)	(0.199)	(0.131)
Leverage	-0.702***	0.475*	3.090***	1.974***	-0.804***	-0.436*	3.113***	1.223***
	(0.178)	(0.267)	(0.346)	(0.243)	(0.171)	(0.238)	(0.363)	(0.244)
Fixed assets/Assets	0.748***	-0.561	0.0127	0.0347	0.601***	-0.0647	0.309	-0.648**
	(0.225)	(0.403)	(0.419)	(0.313)	(0.223)	(0.347)	(0.432)	(0.323)
ln(employees+1)	-0.271***	-0.966***	0.121*	-0.609***	-0.170***	-1.026***	0.0595	-0.606***
	(0.0301)	(0.0683)	(0.0647)	(0.0533)	(0.0309)	(0.0629)	(0.0704)	(0.0561)
EBITDA/Assets	2.132***	-3.389***	-0.685	-0.437	2.210***	-3.548***	0.113	-0.781
	(0.603)	(0.947)	(1.154)	(0.818)	(0.671)	(0.946)	(1.349)	(0.937)
Slaes/Assets	-0.0414	-0.168**	-0.652***	-0.547***	-0.0268	-0.0239	-0.925***	-0.626***
	(0.0408)	(0.0705)	(0.103)	(0.0672)	(0.0470)	(0.0700)	(0.151)	(0.0818)
Current Ratio	0.0859**	0.116**	-0.985***	-0.446***	-0.0156	0.0393	-1.335***	-0.592***
	(0.0402)	(0.0521)	(0.271)	(0.110)	(0.0297)	(0.0387)	(0.350)	(0.111)
Constant	9.946***	3.043	-1.765	17.02***	2.097	-12.56***	-13.81	-4.649
	(1.870)	(3.179)	(418.2)	(2.613)	(2.934)	(4.197)	(683.7)	(4.149)
Observations	100,682	100,682	100,682	100,682	96,555	96,555	96,555	96,555
Pseudo R-squared	0.126	0.126	0.126	0.126	0.125	0.125	0.125	0.125
Log Likelihood	-9087	-9087	-9087	-9087	-8491	-8491	-8491	-8491
LR Chi2	2618	2618	2618	2618	2437	2437	2437	2437

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1