ecgi

International Evidence on Firm Level Decisions in Response to the Crisis: Shareholders vs. Other Stakeholders

Finance Working Paper N° 545/2018
February 2018

Franklin Allen
Imperial College London and ECGI

Elena Carletti
Bocconi University and CEPR

Yaniv Grinstein
IDC Herzliya and ECGI

ECGI Working Paper Series in Finance

International Evidence on Firm Level Decisions in Response to the Crisis: Shareholders vs. Other Stakeholders

Working Paper N° 545/2018

February 2018

Franklin Allen
Elena Carletti
Yaniv Grinstein

This paper was presented at the 26th NBER-TCER-CEPR Conference on "Corporate Governance" which was held at the University of Tokyo on June 22, 2017. We thank Kenichi Ueda (the discussant), the attendees of the conference, the referee and the editor for their helpful comments.

Abstract

The relationship between changes in GDP and unemployment during the 2008 financial crisis differed significantly from previous experiences and across countries. We study firm-level decisions in France, Germany, Japan, the UK, and the US. We find significant differences between the response of US and non-US firms. US firms significantly decreased their production costs relative to firms in other countries. They have also reduced debt, reduced dividend payout, and increased their cash holdings compared to firms in other countries. The differences are, in general, explained by differences in financial leverage. However, financial leverage does not explain differences between production decisions in German and U.S. firms and between Japanese and US firms. We argue that differences in firm governance between US firms and firms in Germany and Japan drive these responses. US firms are more prone to cut labor costs and reduce leverage compared to German firms and Japanese firms in order to achieve larger profits and a larger cash-cushion in the short-run.

Keywords: Okun's law, corporate governance, firm-level decisions

JEL Classifications: E30, G01, G32, G34

Franklin Allen*
Professor of Finance and Economics
Imperial College London, Business School
South Kensington Campus
London SW7 2AZ, United Kingdom
phone: +44 207 594 9195
e-mail: f.allen@imperial.ac.uk

Elena Carletti
Professor of Finance
Bocconi University, Department of Finance
Via Roentgen 1
20136 Milano, Italy
phone: +39 025 836 5953
e-mail: elena.carletti@unibocconi.it

Yaniv Grinstein
Professor
IDC Herzliya, Arison School of Business
Kanfei Nesharim Street
Herzliya, 4610101, Israel
phone: +972 995 272 72
e-mail: grinstein@idc.ac.il

*Corresponding Author

International Evidence on Firm Level Decisions in Response to the Crisis: Shareholders vs. Other Stakeholders*

Franklin Allen
Imperial College London
f.allen@imperial.ac.uk

Elena Carletti
Bocconi University and CEPR
elena.carletti@unibocconi.it

Yaniv Grinstein
IDC Herzliya and ECGI
grinstein@idc.ac.il

December 18, 2017

Abstract

The relationship between changes in GDP and unemployment during the 2008 financial crisis differed significantly from previous experiences and across countries. We study firm-level decisions in France, Germany, Japan, the UK, and the US. We find significant differences between the response of US and non-US firms. US firms significantly decreased their production costs relative to firms in other countries. They have also reduced debt, reduced dividend payout, and increased their cash holdings compared to firms in other countries. The differences are, in general, explained by differences in financial leverage. However, financial leverage does not explain differences between production decisions in German and U.S. firms and between Japanese and US firms. We argue that differences in firm governance between US firms and firms in Germany and Japan drive these responses. US firms are more prone to cut labor costs and reduce leverage compared to German firms and Japanese firms in order to achieve larger profits and a larger cash-cushion in the short-run.

JEL Codes: E30, G01, G32, G34

Keywords: Okun's law, corporate governance, firm-level decisions

* This paper was presented at the 26th NBER-TCER-CEPR Conference on "Corporate Governance" which was held at the University of Tokyo on June 22, 2017. We thank Kenichi Ueda (the discussant), the attendees of the conference, the referee and the editor for their helpful comments.

1. Introduction

One of the interesting features of the 2008 financial crisis is the wide range of relationships between changes in a country's output and changes in unemployment as shown in Figure 1. Spain and Ireland had very large increases in unemployment despite quite different falls in output. This is perhaps not very surprising because both had significant construction industries that were devastated by the bursting of the property bubbles in both countries. More surprising is the fact that countries like Germany and Japan had much larger drops in output than the US but the effect on their unemployment rates was small. Germany actually had a decrease in unemployment.

Figure 2 shows the path of gross domestic product (GDP) for the G5 countries, France, Germany, Japan, the US and UK. It can be seen that Japan had a 10% drop in GDP between quarter 1, 2008 and quarter 1, 2009. Germany's GDP dropped more than 6%, for the UK and US it was about 5%, and for France under 4%. Figure 3 shows a dramatically different situation for unemployment. Japan's unemployment increases a small amount, while Germany's falls most of the time. France and the UK rise somewhat but by far the largest change is the US, which more than doubles from just under 5% to 10%.

Using data from quarter 2, 1947 until quarter 4, 1960, Okun (1962) found that a 3% change in GDP was associated with a change in unemployment of about 1%. This relationship became known as Okun's law. Although it was recognized that Okun's law varied across countries and time (e.g., Lee, 2000, and Knotek, 2007), the breakdown of the relationship during the crisis was of a different order of magnitude than what was previously observed.

There has been extensive discussion of why this change has occurred. One important point that is frequently made is that Okun's law is a statistical relationship. It is not based on a theoretical framework. There is no particular reason why the relationship should be expected to be stable. The examples of Ireland and Spain suggest that the importance of the construction industry in employment when there is a real estate bubble that bursts is a key factor. Much of the discussion has been focused on differences in labor markets. In particular, there are significant differences in employment protection law, the share of temporary workers not protected from dismissal and the generosity of unemployment insurance (see, e.g., IMF, 2010, Chapter 3). There is no consensus on the importance of these factors. Cazes and Verick (2011), for example, conclude that it is difficult

to identify a robust relationship between cross-country estimates of Okun's coefficient and labor market institutions.

One important institutional difference between the countries that has not been considered in the previous literature concerns corporate governance. In the UK and US it is quite clear that shareholders own the firm and managers have a fiduciary (i.e., very strong) duty to act in their interests. In contrast, in Germany there is co-determination. In large corporations employees and shareholders have an equal number of seats on the supervisory board of the company (see Allen and Gale, 2000). Here workers' interests will also matter. In Japan, managers do not have a fiduciary responsibility to shareholders. The legal obligation of directors is such that they may be liable for gross negligence in the performance of their duties, including the duty to supervise (Scott, 1998). In practice, it is widely accepted that stakeholder interests and in particular employee interests play a predominant role (see Dore, 2000, and Jackson and Miyajima, 2007). The system in France is that partially privatized companies must reserve two or three board positions (depending on board size) to be elected by employees. Also, employees in companies where at least 3% of shares are employee owned have the right to elect one director (Ginglinger, Megginson, and Waxin, 2011).

Governance differences among firms across countries appear not only in written laws but also in management and firms' approaches. For example, Diamond (2011) reports survey results of Japanese firms, showing that the majority of them consider employees and customers as the most important stakeholders. Only a minority of the firms consider investors as highly important. Figure 4 shows the results of a survey of managers by Yoshimori (1995). He asked whether a company exists for the interest of all stakeholders or whether shareholder interests should be given the first priority. It can be seen that in Japan, Germany and France it is for all stakeholders while for the UK and US it is for shareholders. Figure 5 shows the results of asking managers to choose between maintaining dividend payments, even if they must lay off a number of employees and maintaining stable employment. Again there is a stark difference with managers in Japan, Germany and France choosing stable employment while in the UK and US they prefer to maintain dividends.

In this paper we take a different approach than the existing literature in that we consider the G5 countries (France, Germany, Japan, the UK, and the US) and focus on the question of how firms in the different countries reacted to the shock that the financial crisis inflicted. The literature discussed has focused on adjustments in labor. While these are no doubt important, they represent

just one margin. There are many others, including investment, financial structure, payout policy and so forth. In this paper we consider a whole range of adjustments that firms can make and that can represent important differences in the way firms react in times of crises.

To analyze firms' response to the crisis, we consider firm level data rather than aggregate data. We take firm level accounting data from Worldscope for France, Germany, Japan and UK and Compustat for the US. We focus on the largest 20% of firms in these datasets. These account for much of each country's economic activity in each of the G5 economies.

One important difference across countries is that the major industries vary considerably in size. For example the automobile industry is very important in Germany but not in the UK. To deal with this we match firms in France, Germany, Japan and the UK with similar firms by size and industry in the US. We then consider how these firms in different countries reacted to the shock of the crisis.

We find significant differences between the response of US and non-US firms. US firms significantly decreased their production costs relative to firms in other countries. They also reduced debt and dividend payout, and increased their cash holdings compared to firms in other countries. We find that the differences are, in general, explained by differences in financial leverage between US firms and foreign firms. Higher financial leverage in US firms before the crisis made firms more vulnerable to funding difficulties in the financial markets and led to more drastic changes in their production decisions.

In our sample of firms in the five countries, we analyze the issue of how firms reacted to the negative shock of the financial crisis. We argue that financial leverage does not explain differences between production decisions in German and US firms and between Japanese and US firms. Rather, we find evidence consistent with the hypothesis that differences in firm governance between US firms and firms in Germany and Japan drive these responses. In particular, US firms are more prone to cut labor costs and reduce leverage compared to German firms and Japanese firms in order to achieve larger profits and a larger cash-cushion in the short-run.

Our study complements existing studies that examine the relation between corporate governance structure and firm-level decisions. Many of these studies focus on explaining these relations within countries. For example, Kim Maug and Schneider (2015) compare German firms

subject to 50% employee representation on the board to German firms that are not subject to such a requirement. Using a difference-in-differences approach, they find that white-collar and skilled blue-collar workers in firms that are subject to the 50% requirement are protected against layoffs during adverse industry shocks. Sraer and Thesmar (2007) show that French family firms tend to protect their workers from layoffs. Hashimoto and Raisian (1985) and Abraham and Houseman (1989) show that life-long employment in Japanese firms is used to facilitate employee investment in firm-specific human capital.

Atanassov and Kim (2009) examines distressed firms across countries that vary in labor-protection and investor-protection laws. Their main finding is that in countries with stronger shareholder protection there is higher likelihood of layoffs and asset sales in these distressed firms. They however do not examine the effect of the financial crisis on these firms.

The paper proceeds as follows. Section 2 considers the data that we use. Our analysis is contained in Section 3. Section 4 concludes.

2. Data

Our data sources are the Worldscope database and the Compustat database. Worldscope collects financial statement data on public firms from around the world. We collect data from Worldscope for companies in Germany, France, UK, and Japan. We collect data for US firms from Compustat.[1] The data is for the years 2005-2009.

2.1 Sampling procedure

We require that all firms are active. We further restrict our sample to firms that do not belong to the financial sector or the public utilities sector, since these firms were either directly affected by the crisis or are restricted by regulations which affect their firm-level decisions. We focus our analysis

[1] Firms might have several different securities traded at several exchanges. Worldscope provides both security-level data as well as aggregate data at a company level. We rely on the company-level data in our analysis to ensure that we do not count each firm multiple times. Worldscope defines the country of the firm as the country in which the firm is domiciled. Clearly, some firms in the sample operate in several countries and even trade on several exchanges across the world, making it hard to define exactly their country of domicile. This presents an identification challenge for this study. Nevertheless, we believe that Worldscope's definition, while imperfect, does capture country-level governance for the majority of firms in the sample. Worldscope's country definition is also the standard definition in empirical studies in international finance.

on the largest firms in each country. We therefore further restrict the sample to firms that are ranked in the top 20% in terms of sales (in the year 2005) out of the same-country firms in the sample. The reason for this restriction is that we are interested in understanding the effect of the crisis on firm-level decisions in the most prominent and important firms in that country.

Table 1 shows aggregate level sales of publically traded firms in each country in fiscal year 2005. All sales are converted to 2005 dollars to allow a comparison across countries. The table also shows that, in each country, the top 20% of the firms have aggregate sales of between 85%-95% of the aggregate sales of all public firms in the country. Therefore, the sample represents almost all firm-level sales in each country by the publically-traded sector. This suggests that the size distribution of firms in each country is highly skewed. Focusing on the largest 20% of the firms further ensures that any average statistic of firm-level decision in a given country is indeed made by the prominent firms in the country.

2.2 Fiscal year

The vast majority of US, German, and French firms in our sample have a fiscal year end coinciding with the calendar year.[2] This allows us to make a meaningful comparison of firm decisions across these countries across the years. However, in two countries – the UK and Japan, the fiscal-year end does not coincide with the calendar year-end. In Japan, the vast majority of firms have a fiscal year end of March 31st. In the UK, about half of the firms have a fiscal year which coincides with the calendar year-end and the rest are relatively scattered.

To account for the fiscal-year mismatch of Japanese firms we rely on their quarterly data. Worldscope has a separate database in which it records financial results of Japanese firms on a quarterly basis. The coverage is almost complete for income statement variables and balance sheet variables, but is not complete for cash-flow statement variables. We therefore aggregate income-statement variables over the four calendar quarters in order to match the income-statement variables to the end of the calendar year.[3] Similarly, we rely on the balance-sheet at the end of the fourth

[2] In the US, the average fiscal-year month in 2005 is 11.3 with standard deviation of 1.61. In Germany, the average fiscal year month in 2005 is 11.19 with a standard deviation of 2.21. In France, the average fiscal-year month in 2005 is 11.39 with a standard deviation of 1.92.

[3] For Japanese firms the variables Cost of Goods Sold and Sales General and Administration Expenses are aggregated in the quarterly statements. We therefore use an approximation procedure to disentangle the two costs. We describe this procedure in detail in the Appendix.

calendar quarter in order to match balance-sheet statement variables to the end of the calendar year. For cash-flow statement variables we rely on the annual data. When data is not available over the four quarters, we also rely on the annual data.

For UK firms, Worldscope does not record quarterly results, only semi-annual results. We therefore do not make adjustments to UK firms. Instead, we assume that UK firms report at the end of the calendar year. We repeat the tests in the analysis part on a subset of UK firms that have a fiscal year end that coincides with the end of the year. Our results are not sensitive to restricting our sample to this set of firms.

2.3 Differences in firm mix across countries.

To ensure a meaningful comparison of firm-level decisions around the financial crisis we need to ensure that our results are not driven by firm-level differences in characteristics. Indeed, the characteristics of firms in our sample are likely to be different across countries. One reason for these differences is that we restrict ourselves to publicly traded firms. To the extent that some countries rely more on the public financial markets than other countries, our sample will capture a different fraction of economic activity across countries. We believe that this concern is mitigated by the fact that we focus on the largest firms in each country. The largest firms are more likely to be actively traded in the financial markets and more visible, and therefore are more likely to be in our sample, regardless of their country of origin.

Another reason for differences in economic activities is industry specialization across countries. Table 2 shows the industry distribution of firms in our sample. The table shows that Food and Oil are the industries with the largest sales in France and in the UK. In contrast, in Germany the Automobile industry captures almost a third of the sales, and in Japan Automobile and Electronics industries together capture 18.2% of the sales of firms in the sample. In the US, Oil and gas as well as Automobiles are the industries with the largest sales, capturing together 19.3% of total sales.

To ensure that our results are not driven by differences on the effect of the crisis on different economic sectors, in our analysis we match firms across countries by industry and size (sales).

3 Analysis

3.1 Aggregate-level activity in firms across countries around the financial crisis.

The financial crisis had a stark economic effect on economic activity across countries. Figure 2 shows changes in GDP levels from quarter 1 of 2008 until quarter 3 of 2011 across the G5 countries around the crisis. The figure shows a decline in GDP across all countries in 2008, which reached its trough in quarter 1 of 2009 (except for UK, which saw a continued decline until quarter 3 of 2009). The decline (from the levels in quarter 1 of 2008) is on the order of 5% in the US and the UK, more than 6% in Germany, under 4% in France, and 10% in Japan. Thus, it is clear from the figure that the financial crisis hit all countries in our sample.

Table 3 shows the aggregate sales activity of firms in our sample across the same period. Consistent with the effect of the financial crisis on GDP, the table shows stark declines in sales in fiscal year 2009 from their levels in 2008. The declines are 9.3% in France, 10% in Germany, 19% in Japan, 5% in the UK and 14% in the US. Therefore, on average, firms in our sample were affected by the economic crisis and show decrease in sales which are roughly the same order of magnitude as the decrease in GDP.

3.2 Firm-level activity across countries around the financial crisis

Table 4 shows firm-level activity around the financial crisis for German (panel A), French (panel B), UK (panel C), Japanese (panel D), and US firms (panel E). For each country the table shows statistics regarding production, financial, and investment decisions. The definition of variables appears in the appendix.

On average, firms in our sample saw a large decline in their return on sales between 2007 and 2009. German firms saw an average decline in their return on sales from 7% in 2007 to 6% in 2008 and 3% in 2009. French firms saw a decline from 10% to 8% between 2007 and 2009 and Japanese firms saw a decline from 6% to 3%. US firms saw a decline from 11% to 9%. Interestingly, UK firms did not see a change in their returns between 2007 and 2009.

Production costs have also fluctuated during the period. In Germany, average Cost of Goods Sold (COGS) to Sales have increased from 69% to 71% during the 2007-2009 period and in France, they have increased from 70% to 71%. The UK has seen an average increase from 62% to 64%. Japan

saw an increase from 76% to 80% and the US saw an increase from 68% to 69%. General Sales and Administration costs (SG&A) to Sales have increased also in Germany, Japan, and the US but remained relatively stable in the other countries.

Financial ratios have also changed during the period. Across all countries, firms have increased their cash holdings. In Germany, average cash to sales ratio has increased from 9% in 2007 to 13% in 2009. In France, it has increased from 12% to 16%, in the UK it has increased from 11% to 12% and in Japan it has increased from 11% to 14%. The US saw the largest increase in cash holdings, from 9% in 2007 to 14% in 2009. Another notable change is in leverage, captured by the Long-term (LT) debt to asset ratio. Firms have decreased their leverage in France and the UK, while for Germany the average ratio has not changed, and for the US and Japan, debt ratios have increased.

On average, investment in tangible assets (change in net PP&E to Assets) has increased between 2007 and 2009. In Germany, the increase is 3% (from 60% to 63%), in France the increase is 2% (52% to 54%) and in the UK the increase is 3% (53% to 56%). Japan has increased net PP&E to Assets by 6% (74% to 80%) and the US has increased its net PP&E to Asset ratio by 4% (55% to 59%).

Clearly, firms saw changes in their production ratios, financial ratios, and investment ratios around the crisis. Our goal is to assess whether firms in different countries changed these ratios differently. A simple univariate analysis of differences in the ratios across countries is unlikely to be informative, because, as we saw, firms in different countries have different industry mixes and size mixes. We therefore match firms in one country to firms in another country by industry and size and explore differences in the ratios after the proper matching. We describe the results in the next subsection.

3.3 Analysis in differences in firm-level decisions around the crisis

Our analysis is between US firms and firms in other countries. For each firm in a given country we match a US firms which belongs to the same industry. We pick the firm from the same industry that is closest in size (2005 dollar sales) to the firm in that country. We repeat the matching for all firms in that country. We then examine differences in changes (diff-in-diff) in the firm-level ratios

between the portfolio and the US-matched portfolio. We examine changes between 2007 and 2009, and between 2008 and 2009. We present the results in Table 5.

Table 5 shows that, between 2007 and 2009, US firms saw an average decrease in returns on sales that is smaller than the decrease in returns on sales in firms in Germany, France, Japan, and the UK. However, the differences are statistically significant only against Japan. However, change in CGS/Sales has been significantly lower in the US than in the UK, France, Germany and Japan. SG&A/Sales has increased in the US compared to the UK, France and Germany, but has decreased compared to Japan. The differences are, by and large, statistically insignificant (except for Japan). The decreases in returns on sales are significant when comparing non US-firms to US firms between 2008 and 2009 as well. US firms see a smaller decrease in return on sales during that period. CGS/Sales has decreased significantly more in US firms compared to non-US firms between 2008 and 2009 but changes in SG&A/Sales are not statistically different between US and non-US firms (except for Japan, which saw a significant increase in SG&A/Sales compared to US firms during that period).

Table 6 reports changes in financial ratios between the US and other countries. The pattern suggests that US firms have increased their cash reserves compared to non-US firms. The difference is statistically significant between 2007 and 2009 relative to UK firms and Japanese firms, and relative to Japanese, French, and UK firms between 2008 and 2009. The debt to asset ratio has increased in the US between 2007 and 2009, both in absolute terms, and also compared to matched firms in other countries (UK, and Germany) but not compared to Japan. Dividend to Assets has also decreased in the US compared to other countries, as well as equity issuance.

Table 7 shows differences in investment in Property, Plant and Equipment. The table shows that there are no significant differences in the investment activity in the US compared to Germany and France. However, there has been an increased investment compared to the UK and decreased activity compared to Japan. This effect reverses between 2008 and 2009. Therefore, overall, there does not seem to be a consistent pattern of investment in the US compared to firms in other countries.

3.4 Why have production costs decreased so much in US firms compared to firms in other countries?

The previous subsection showed a clear pattern of decreased production costs in US firms compared to firms in other countries. In this subsection we examine the reasons behind this difference.

Our approach in the previous section controlled for industry and size. However, there could be other differences between US firms and firms in other countries that could drive the results. One important aspect of the financial crisis is that it reduced available funds for firms. Firms that were more constrained and did not have enough cash to finance their operations might have reduced production costs in order to survive. For example, US firms were more levered than non-US firms in the period before the crisis (average LT Debt/Asset of 24% in 2007), and it is possible that the financial leverage was constraining them more than non-US firms.

To examine whether differences in the changes in production costs are driven by financial constraints, we run the following diff-in-diff regression:

$$(\text{COGS/Sales}_{i\_us2009} - \text{COGS/Sales}_{i\_us2007}) - (\text{COGS/Sales}_{i\_non\_US2009} - \text{COGS/Sales}_{i\_non\_US2007}) = \alpha + \beta_1(\text{LT Debt/Assets}_{i\_us2007} - \text{LT Debt/Assets}_{i\_non\_us2007}) + \beta_2 (\text{Div/Sales}_{i\_us2007} - \text{Div/Sales}_{i\_non\_us2007}) + \beta_3 (\text{Cash/Sales}_{i\_us2007} - \text{Cash/Sales}_{i\_non\_us2007}) + \varepsilon_i$$

where i represents the matched US firm and non-US firm. The control variables Cash/Sales, Div/Sales, and LT Debt/Assets are measured in 2007, before the financial crisis. The control variables capture differences in debt levels, dividend levels and cash levels between US firms and non-US firms before the crisis. We expect US firms to cut costs more if they had higher leverage, lower cash levels, and higher dividends as compared to non-US firms. This means that the dependent variable will become smaller (or more negative) when US firms are more cash constrained before the crisis relative to non US firms. Therefore, we expect β_1 to be negative, β_2 to be negative, and β_3 to be positive.

Table 8 shows the regression results for each of the countries. The table shows that, without controlling for the financial variables, US firms see a larger decrease in COGS/Sales compared to non US firms. Interestingly, adding the financial variables takes away from the results for UK and France. Therefore, it seems that differences in operational efficiency in firms between the countries can be fully explained by differences in the financial condition of these two countries' firms. In contrast, for Germany, and Japan, the differences in COGS/Sales changes cannot be explained by differences in financial variables. The signs of the coefficients of the control variables seem to be in the right direction for leverage and cash controls – i.e., larger leverage in US firms means a larger decrease in COGS (negative coefficient), and larger cash holdings in US firms means a lower decrease in COGS (positive coefficient) relative to France and the UK. However, the sign of the dividend control variable seems to be in the wrong direction – it is positive and significant for UK firms. This means that US firms which paid higher dividends relative to UK firms before the crisis showed less efficiency gains during the crisis. One possible reason for this result is that levels of dividends represent not necessarily constraints but the level of cash that the firm can have, should it decide to decrease its dividends.

One concern with our analysis is that we do not control for differences in firm-level economic shocks across countries. It is possible that firms in the US saw a larger economic shock than firms outside the US, which made them respond more strongly to the crisis.

To address this concern we include in the regression a diff-in-diff variable which captures differences in sales decline between US and the foreign firms between the years 2007 and 2009. To the extent that the results are driven by differences in shocks, adding this control to the regression will reduce both the economic and the statistical significance of our results. Table 8 column (3) shows the regression results with the additional control. The table shows that adding changes in sales between the firm and the matched firms over the years 2007-2009 does not change any of the original results.

3.5 What can explain the drop in US costs compared to Germany and Japan? – The governance argument

One argument for the differences in cost cutting between US firms and German and Japanese firms is that German and Japanese firms differ in their governance compared to US firms. In Germany

and Japan, firms more inclined to preserve employees due to labor laws and governance structure in firms. In Germany, the goal of firms with more than 2,000 employees, dictated by law, is to combine interests of investors and employees (codetermination). In Japan, managers do not have a fiduciary responsibility to shareholders. The legal obligation of directors is such that they may be liable for gross negligence in performance of their duties, including the duty to supervise. In practice it is widely accepted that they pursue the interests of a variety of stakeholders.

To examine this hypothesis, we develop a variable which captures the labor-intensiveness of firms in the industry. The measure is the aggregate number of employees in a particular industry, divided by the aggregate sales in the industry – all measured over Compustat firms in the year 2007. When this ratio is large, it means that more employees are required to generate fewer sales. Industries where more employees are required to generate fewer sales are more labor-intensive and therefore they are more likely to incur costs of replacing and firing employees – in Germany and Japan in particular.

We therefore introduce the variable in the regression. To the extent that our hypothesis is correct, this variable should bear a negative sign (which means that in more labor-intensive industries US firms are likely to reduce more costs compared to German firms or Japanese firms than in less labor-intensive industries), and would take away from the negative return, measured by the intercept.

The regression, in Table 9, shows that, consistent with our conjecture, the labor-intensive measure bears a negative sign for both German and Japanese firms. However, the coefficient of this measure is not significantly different than zero, suggesting that it might not capture very well differences in governance across industries. Interestingly, the coefficient of the intercept, measuring unexplained difference in production costs also decreases in both regressions once we introduce this measure. The intercept completely vanishes for German firms from -1.3% and becomes positive and both economically and statistically insignificant. For Japanese firms, the intercept is slightly smaller but still significantly negative after introducing the additional control variable, suggesting that the higher costs cannot be fully attributed to firms in labor-intensive industries.

4. Concluding Remarks

The relationship between changes in GDP and changes in unemployment changed significantly in the 2008 financial crisis. In addition there were large differences in this relationship across countries. There has been much discussion of why this has happened based on aggregate data. Most of this discussion focused on differences in labor markets. However, adjustments in labor are only one part of the adjustment process undertaken by firms in response to the shock of the 2008 financial crisis. In this study we use firm level data from Worldscope for France, Germany, Japan and the UK and from Compustat for the US to consider a range of margins.

We find that there are significant differences between the response of US and non-US firms. US firms significantly decreased their production costs relative to firms in other countries. They have also reduced debt, reduced dividend payout, and increased their cash holdings compared to firms in other countries. These differences exist after controlling for industry and size. We find that the differences are, in general, explained by differences in financial leverage between US firms and foreign firms. Higher financial leverage in US firms before the crisis made US firms more vulnerable to illiquidity in the financial markets and led to more drastic changes in their production decisions. However, financial leverage does not explain differences between production decisions in German and Japanese firms compared to US firms. We argue that differences in firm governance between US firms on the one hand and German and Japanese firms are consistent with these responses. In particular, US firms are more prone to cut labor costs and reduce leverage compared to German and Japanese firms in order to achieve larger profits and a larger cash-cushion in the short-run.

Appendix: Definition of variables

Variable Definitions for European firms (Germany, UK, France)

Variable	Definition
Sales	WC01001 (NET SALES OR REVENUES)
Return on Sales	WC01250 (OPERATING INCOME)/WC01001
COGS/Sales	WC01051 (COST OF GOODS SOLD (EXCL DEP))/WC01001
SG&A/Sales	WC01101 (SELLING, GENERAL & ADMINISTRATION)/WC01001
Cash/Sales	WC02001 (CASH AND EQUIVALENT) / WC01001
Finance/Sales	WC04890 (NET CASH FLOW - FINANCING)/WC01001
Dividend/Assets	WC04551 (CASH DIVIDENDS PAID - TOTAL)/WC02999 (TOTAL ASSETS)
LT Debt/Assets	WC03040 (LONG TERM DEBT) /WC02999 (TOTAL ASSETS)
Equity Issuance/Assets	WC04251 (NET PROCEEDS FROM SALE/ISSUE C+P)/WC02999 (TOTAL ASSETS)
PP&E/Assets	WC02501 (PROPERTY, PLANT & EQUIP - NET)/WC02999
Investment/Sales	WC04870 (NET CASH FLOW - INVESTING)/WC01001

Variable Definitions for Japanese Firms (When data is missing we use the annual definition above)

Variable	Definition
Sales	Aggregate of quarterly Sales (WC01001A) over the four calendar quarters
Return to Sales	Aggregate of quarterly income (WC01250A) over the four calendar quarters /Aggregate of quarterly Sales (WC01001A) over the four calendar quarters
LT Debt/Assets	Long term debt at the end of the fourth calendar quarter (WC03251A) / Total assets at the end of the fourth calendar quarter (WC02999A)
PP&E/Assets	PP&E at the end of the fourth calendar quarter (WC02501A) / Total assets at the end of the fourth calendar quarter (WC02999A)

Cash /Sales	Cash and equivalent at the end of the fourth calendar quarter (WC02001A)/Aggregate of quarterly Sales (WC01001A) over the four calendar quarters
COGS/Sales and SG&A/Sales	The variables Cost of Goods Sold and Sales General Administration are not available separately in the quarterly data (quarterly SG&A (WC01101A) is missing and quarterly COGS (WC01051A) includes both SG&A and COGS). We therefore use the identity: Operating income = Sales - Cost of Goods Sold - Sales General Administration - Depreciation to back out the total expenses Cost of Goods Sold + Sales General Administration. Cost of Goods Sold + Sales General Administration = Sales - Operating income - Depreciation Where Sales is the aggregate quarterly sales defined above, Operating income is the aggregate of quarterly operating income (WC01250A) over the four calendar quarters and Depreciation is the aggregate of quarterly Depreciation (WC01151A) over the four calendar quarters. We approximate the part of the expenses attributed to COGS by multiplying COGS+SG&A by the ratio COGS/(SG&A+COGS) of the annual data (ending in the first quarter of the following year). Similarly, we approximate the part of the expenses attributed to SG&A by multiplying COGS+SG&A by the ratio SG&A/(SG&A+COGS). For each of the variables we then divide by the aggregate sales
Finance/Sales	We use the annual definition since the statement of cash flow variables are usually not available in quarterly data
Dividend/Assets	We use the annual definition since the statement of cash flow variables are usually not available in quarterly data
Equity Issuance/Assets	We use the annual definition since the statement of cash flow variables are usually not available in quarterly data
Investment/Sales	We use the annual definition since the statement of cash flow variables are usually not available in quarterly data

Variable Definitions for US firms

We rely on Compustat database instead of Worldscope database because there is a better coverage of firms and variables for US firms in Compustat. We use the following conversion between Worldscope variables and Compustat variables

Variable Description	Worldscope code	Compustat code
NET SALES OR REVENUES	WC01001	SALE
COST OF GOODS SOLD (EXCL DEP)	WC01051	COGS
SELLING, GENERAL & ADMINISTRAT	WC01101	XSGA
OPERATING INCOME	WC01250	OIADP
CASH AND EQUIVALENT	WC02001	CHE
TOTAL ASSETS	WC02999	AT
LONG TERM DEBT	WC03040	DLTT
NET PROCEEDS FROM SALE/ISSUE CP	WC04251	SSTK
CASH DIVIDENDS PAID - TOTAL	WC04551	DV
NET CASH FLOW-OPERATING ACTIVS	WC04860	OANCF
NET CASH FLOW - INVESTING	WC04870	IVNCF
NET CASH FLOW - FINANCING	WC04890	FINCF

References

Abraham K.G., and S.N. Houseman (1989), Job security and work force adjustment: How different are U.S. and Japanese practices?, Journal of the Japanese and International Economies 3, 500-521.

Allen, F., and D. Gale (2000). *Comparing Financial Systems*, Cambridge, MA: MIT Press.

Atanassov J., and E.H. Kim (2009), Labor and corporate governance: International evidence from restructuring decisions, Journal of Finance 64, 341-374.

Cazes, S. and S. Verick (2011). "What has Happened to Okun's Law in the US and Europe? Insights from the Great Recession and Longer Term Trends," ILO, Geneva, http://www.ilo.org/public/english/bureau/inst/download/rc_confdownload/sandrine.pdf .

Diamond, J. (2011). Essays on the Japanese labor market. UC San Diego: Economics. b7075307. Retrieved from: http://escholarship.org/uc/item/67v3b94h

Dore, R. (2000). *Stock Market Capitalism: Welfare Capitalism: Japan and Germany versus the Anglo-Saxons*, Oxford: Oxford University Press.

Ginglinger, E., W. Megginson, and T. Waxin (2011), Employee ownership, board representation, and corporate financial policies, Journal of Corporate Finance 17, 868-887.

Hashimoto, M., and J. and Raisian (1985), Employment tenure and earnings: Profiles in Japan and the United States, American Economic Review 75, 721-735.

International Monetary Fund (IMF) 2010. "Unemployment Dynamics During Recessions and Recoveries: Okun's Law and Beyond", Chapter 3 *World Economic Outlook Rebalancing Growth*, Washington, D.C., IMF.

Jackson, G. and H. Miyajima (2007). "Introduction: The Diversity and Change of Corporate Governance in Japan," Chapter 1 in M. Aoki, G. Jackson, and H. Miyajima, (eds.), *Corporate Governance in Japan: Institutional Change and Organizational Diversity*, Oxford: Oxford University Press.

Kim, H., Maug, E., and C. Schneider, (2015), Labor representation in governance as an insurance mechanism, Working paper, University of Michigan.

Knotek, E (2007), How useful is Okun's Law?, Economic Review Q4, 73-103.

Lee, J. (2000), The robustness of Okun's Law: Evidence from OECD countries, Journal of Macroeconomics 22, 331-356.

Okun, A. (1962), Potential GNP: its measurement and significance, *American Statistical Association*, Proceedings of the Business and Economics Section, 98-104.

Scott, K. (1998), The role of corporate governance in South Korean economic reform, Journal of Applied Corporate Finance 10, 8-15.

Sraer D, and D. Thesmar, (2007), Performance and behavior of family firms: Evidence from the French stock market, Journal of the European Economic Association 5, 709-751.

Yoshimori, M. (1995), Whose company is it? The concept of the corporation in Japan and the west, Long Range Planning 28, 33-44.

Table 1: Summary statistics

The sample consists of firms that existed in Worldscope in the year 2005 and whose sales in 2005 were ranked in the top quintile of all public firms in Worldscope in 2005 from the same country. Financials and utility companies are excluded. We further require sampled firms to have financial data in Worldscope in the years 2005-2009. Sales are denominated in 2005 dollars – based on the exchange rates for each of the companies at the end of their fiscal year.

Panel A: Sample representation

Country	Aggregate sales of all public firms in Worldscope ($B)	Aggregate sales of sampled firms ($B)	% of aggregate sales of all public firms in Worldscope	Number of sampled firms
France	1397.7	1321.9	95%	99
Germany	1217.8	1166.2	96%	101
Japan	4762.0	4060.6	85%	533
UK	1712.4	1623.5	95%	188
US	6882.8	5846.8	85%	377

Table 2: Industry distribution of firms in the sample

The table shows industry distribution within sample firms, by country. The 20 industries with the largest sales representation (in US dollars, as of 2005) are presented.

France	Revenue ($B)	% of total	**Germany**	Revenue ($B)	% of total	**UK**	Revenue ($B)	% of total
Food Retail, Wholesale	169.2	12.8%	Automobiles	373.7	32.0%	Integrated Oil & Gas	540.3	33.3%
Integrated Oil & Gas	158.2	12.0%	Divers. Industrials	147.4	12.6%	Food Retail, Wholesale	118.3	7.3%
Automobiles	114.3	8.6%	Mobile Telecom.	72.2	6.2%	General Mining	92.4	5.7%
Heavy Construction	74.6	5.6%	Commodity Chemicals	70.3	6.0%	Food Products	71.8	4.4%
Con. Electricity	71.7	5.4%	Food Retail, Wholesale	65.3	5.6%	Mobile Telecom.	65.5	4.0%
Building Mat.& Fix.	66.2	5.0%	Delivery Services	52.2	4.5%	Pharmaceuticals	61.8	3.8%
Fixed Line Telecom.	57.4	4.3%	Specialty Chemicals	42.4	3.6%	Business Support	61.8	3.8%
Aerospace	56.5	4.3%	Heavy Construction	25.4	2.2%	Specialty Retailers	45.5	2.8%
Broadline Retailers	48.4	3.7%	Drug Retailers	24.0	2.1%	Fixed Line Telecom.	42.3	2.6%
Water	42.6	3.2%	Industrial Machinery	23.9	2.1%	Gambling	39.9	2.5%
Broadcast & Entertain	35.9	2.7%	Airlines	22.6	1.9%	Restaurants & Bars	36.7	2.3%
Clothing & Accessory	35.0	2.6%	Comm. Vehicles,Trucks	21.8	1.9%	Industrial Suppliers	35.0	2.2%
Pharmaceuticals	32.0	2.4%	Travel & Tourism	21.3	1.8%	Broadline Retailers	28.6	1.8%
Electrical Equipment	31.1	2.4%	Tires	16.2	1.4%	Gas Distribution	23.3	1.4%
Auto Parts	29.6	2.2%	Con. Electricity	15.9	1.4%	Tobacco	21.9	1.3%
Food Products	27.0	2.0%	Iron & Steel	14.2	1.2%	Defense	20.7	1.3%
Airlines	25.2	1.9%	Nondur. Household	14.0	1.2%	Publishing	18.8	1.2%
Industrial Machinery	23.1	1.7%	Building Mat.& Fix.	12.7	1.1%	Home Construction	18.6	1.1%
Computer Services	19.0	1.4%	Pharmaceuticals	12.2	1.0%	Con. Electricity	15.9	1.0%
Commodity Chemicals	18.9	1.4%	Food Products	11.4	1.0%	Travel & Tourism	15.6	1.0%
Revenue in top 20 industries	1135.6	85.9%		1059.2	91%		1374.8	85%
Total rev of firms in sample	1321.9	100%		1166.2	100%		1,624	100%

Japan	Revenue ($B)	% of total	US	Revenue ($B)	% of total
Automobiles	516.1	12.7%	Integrated Oil & Gas	768.6	13.0%
Consumer Electronics	223.5	5.5%	Automobiles	372.8	6.3%
Iron & Steel	209.9	5.2%	Healthcare Providers	277.5	4.7%
Industrial Suppliers	182.4	4.5%	Divers. Industrials	258.4	4.4%
Auto Parts	160.9	4.0%	Con. Electricity	243.9	4.1%
Con. Electricity	157.5	3.9%	Drug Retailers	214.0	3.6%
Heavy Construction	155.0	3.8%	Food Products	193.7	3.3%
Divers. Industrials	140.6	3.5%	Exploration & Prod.	189.2	3.2%
Industrial Machinery	140.2	3.5%	Pharmaceuticals	182.5	3.1%
Travel & Tourism	119.4	2.9%	Broadcast & Entertain	181.3	3.1%
Computer Hardware	116.0	2.9%	Computer Hardware	173.0	2.9%
Electronic Equipment	112.6	2.8%	Fixed Line Telecom.	128.9	2.2%
Fixed Line Telecom.	102.8	2.5%	Comm. Vehicles,Trucks	121.1	2.1%
Broadline Retailers	100.9	2.5%	Defense	120.5	2.0%
Elec. Office Equip.	94.2	2.3%	Aerospace	116.3	2.0%
Commodity Chemicals	91.5	2.3%	Commodity Chemicals	115.7	2.0%
Electrical Equipment	91.0	2.2%	Pipelines	99.1	1.7%
Mobile Telecom.	87.4	2.2%	Computer Services	96.9	1.6%
Pharmaceuticals	86.7	2.1%	Food Retail, Wholesale	94.3	1.6%
Food Products	86.3	2.1%	Specialty Retailers	93.1	1.6%
Revenue in top 20 industries	2974.8	73%		4040.7	69%
Total rev of firms in sample	4,061	100%		5897.2	100%

Table 3: Aggregate sales of sample firms by year

The table shows aggregate sales of sample firms by year. The sample consists of the largest public firms in each country (top 20% in 2005 sales. Sales are denominated in home-country currency.

	Aggregate Sales (Billions)	% change from previous year
France (Euros)		
2005	1123	
2006	1207	7.4%
2007	1280	6.1%
2008	1359	6.2%
2009	1232	-9.3%
Germany (Euros)		
2005	985	
2006	1091	11%
2007	1091	0%
2008	1127	3%
2009	1013	-10%
Japan (Yen)		
2005	349,228	
2006	447,353	28%
2007	488,128	9%
2008	493,859	1%
2009	400,433	-19%
UK (Pounds)		
2005	911	
2006	955	5%
2007	999	5%
2008	1237	24%
2009	1177	-5%
US(Dollars)		
2005	5846	
2006	6308	8%
2007	6754	7%
2008	7354	9%
2009	6328	-14%

Table 4 Financial characteristics of firms in the sample

The table shows summary statistics of sample firms by year and by country. The sample consists of the largest public firms in each country (top 20% in 2005 sales). Sales are denominated in home-country currency. All variable definitions appear in the appendix.

Panel A - Germany

Production

	Sales (Revenues) (Million Euros)			Return on Sales			COGS/Sales			SG&A/Sales		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	9756	21503	1865	0.06	0.05	0.05	0.7	0.17	0.73	0.19	0.12	0.16
2006	10807	23117	2105	0.06	0.06	0.06	0.7	0.16	0.73	0.18	0.13	0.15
2007	10804	20644	2367	0.07	0.06	0.07	0.69	0.18	0.72	0.18	0.13	0.14
2008	11160	20850	2524	0.06	0.07	0.05	0.7	0.18	0.72	0.18	0.13	0.15
2009	10033	18988	2461	0.03	0.08	0.03	0.71	0.19	0.73	0.19	0.13	0.16

Financials

	Cash/Sales			Finance/Sales			Dividend/Assets			LT Debt/Assets			Equity Issuance/Assets		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	0.09	0.09	0.07	-0.01	0.09	-0.02	0.01	0.01	0.01	0.12	0.08	0.11	0.01	0.04	0
2006	0.09	0.1	0.05	0.01	0.11	-0.01	0.01	0.01	0.01	0.13	0.08	0.11	0.02	0.05	0
2007	0.09	0.09	0.07	0.01	0.16	-0.01	0.02	0.07	0.01	0.12	0.07	0.11	0.01	0.03	0
2008	0.08	0.09	0.06	0	0.07	-0.01	0.02	0.02	0.01	0.12	0.07	0.11	0	0.02	0
2009	0.13	0.13	0.1	0.01	0.13	-0.01	0.02	0.02	0.01	0.12	0.08	0.1	0.01	0.05	0

Investment

	PP&E/Assets			Investment/Sales		
	Mean	Std	Median	Mean	Std	Median
2005	0.69	0.43	0.64	0.07	0.11	0.04
2006	0.64	0.39	0.59	0.09	0.13	0.05
2007	0.6	0.36	0.55	0.1	0.19	0.05
2008	0.6	0.36	0.57	0.08	0.09	0.05
2009	0.63	0.36	0.6	0.09	0.19	0.05

Panel B – France

Production

	Sales (Revenues) (Million Euros)			Return on Sales			COGS/Sales			SG&A/Sales		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	11345	17365	5085	0.09	0.09	0.07	0.7	0.2	0.74	0.23	0.14	0.18
2006	12187	18620	5542	0.1	0.09	0.07	0.7	0.2	0.75	0.22	0.14	0.17
2007	12930	19345	5675	0.1	0.09	0.07	0.7	0.2	0.74	0.22	0.14	0.17
2008	13727	21335	5624	0.09	0.09	0.07	0.7	0.2	0.76	0.21	0.15	0.17
2009	12448	17845	4464	0.08	0.09	0.06	0.71	0.2	0.78	0.22	0.15	0.17

Financials

	Cash/Sales			Finance/Sales			Dividend/Assets			LT Debt/Assets			Equity Issuance/Assets		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	0.15	0.13	0.11	-0.01	0.09	-0.01	0.02	0.03	0.01	0.15	0.09	0.14	0.01	0.03	0.06
2006	0.14	0.11	0.1	-0.03	0.15	-0.02	0.05	0.33	0.01	0.15	0.1	0.13	0.01	0.03	0.06
2007	0.12	0.1	0.09	-0.02	0.1	-0.02	0.02	0.04	0.01	0.15	0.1	0.13	0.01	0.03	0.07
2008	0.13	0.11	0.1	-0.01	0.09	-0.01	0.02	0.04	0.01	0.14	0.09	0.12	0	0.01	0.07
2009	0.16	0.13	0.13	-0.02	0.12	-0.02	0.02	0.04	0.01	0.13	0.09	0.11	0.01	0.02	0.05

Investment

	PP&E/Assets			Investment/Sales		
	Mean	Std	Median	Mean	Std	Median
2005	0.55	0.43	0.47	0.08	0.09	0.06
2006	0.54	0.41	0.44	0.07	0.09	0.06
2007	0.52	0.41	0.42	0.09	0.1	0.07
2008	0.53	0.4	0.44	0.09	0.09	0.07
2009	0.54	0.41	0.43	0.07	0.11	0.05

Panel C – UK

Production

	Sales (Revenues) (Million Pounds)			Return on Sales			COGS/Sales			SG&A/Sales		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	4848	16380	1345	0.07	0.12	0.11	0.64	0.21	0.68	0.2	0.15	0.15
2006	5079	16799	1480	0.07	0.13	0.12	0.63	0.21	0.66	0.21	0.15	0.16
2007	5314	17107	1590	0.07	0.13	0.12	0.62	0.22	0.65	0.21	0.15	0.18
2008	6582	23594	1795	0.06	0.13	0.11	0.64	0.21	0.66	0.2	0.15	0.16
2009	6259	18216	1868	0.07	0.11	0.1	0.64	0.22	0.69	0.21	0.16	0.17

Financials

	Cash/Sales			Finance/Sales			Dividend/Assets			LT Debt/Assets			Equity Issuance/Assets		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	0.13	0.15	0.07	-0.02	0.3	-0.03	0.03	0.04	0.02	0.12	0.12	0.09	0.01	0.04	0.00
2006	0.11	0.13	0.07	-0.04	0.26	-0.02	0.06	0.36	0.03	0.12	0.11	0.09	0.01	0.05	0.00
2007	0.11	0.15	0.07	0	0.39	-0.02	0.04	0.06	0.02	0.12	0.12	0.09	0.02	0.09	0.00
2008	0.12	0.17	0.067	-0.03	0.14	-0.02	0.03	0.03	0.02	0.12	0.11	0.09	0.01	0.05	0.00
2009	0.12	0.15	0.075	-0.05	0.13	-0.04	0.03	0.07	0.02	0.11	0.11	0.08	0.02	0.04	0.00

Investment

	PP&E/Assets			Investment/Sales		
	Mean	Std	Median	Mean	Std	Median
2005	0.57	0.39	0.49	0.08	0.27	0.04
2006	0.55	0.38	0.46	0.08	0.29	0.05
2007	0.53	0.38	0.45	0.12	0.37	0.05
2008	0.52	0.38	0.46	0.09	0.15	0.06
2009	0.56	0.4	0.47	0.07	0.15	0.04

Panel D – Japan

Production

	Sales (Revenues) (Billion Yens)			Return on Sales			COGS/Sales			SG&A/Sales		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	655	1334	266	0.07	0.17	0.05	0.76	0.15	0.78	0.18	0.12	0.16
2006	839	1646	339	0.06	0.06	0.05	0.76	0.15	0.79	0.17	0.12	0.15
2007	916	1829	354	0.06	0.06	0.05	0.76	0.15	0.79	0.17	0.12	0.15
2008	927	1763	360	0.05	0.06	0.04	0.78	0.16	0.81	0.18	0.13	0.16
2009	751	1367	314	0.03	0.06	0.02	0.80	0.16	0.83	0.19	0.13	0.16

Financials

	Cash/Sales			Finance/Sales			Dividend/Assets			LT Debt/Assets			Equity Issuance/Assets		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	0.14	0.19	0.09	-0.01	0.06	-0.01	0.01	0.01	0.01	0.13	0.13	0.10	0.01	0.02	0
2006	0.12	0.16	0.07	-0.01	0.06	-0.01	0.01	0.01	0.01	0.13	0.12	0.09	0	0.02	0
2007	0.11	0.14	0.07	-0.01	0.05	-0.01	0.01	0.01	0.01	0.12	0.12	0.09	0	0.01	0
2008	0.11	0.13	0.07	0.01	0.07	0.00	0.01	0.01	0.01	0.13	0.12	0.09	0	0.01	0
2009	0.14	0.19	0.10	-0.03	0.06	-0.02	0.01	0.01	0.01	0.14	0.13	0.11	0	0.01	0

Investment

	PP&E/Assets			Investment/Sales		
	Mean	Std	Median	Mean	Std	Median
2005	0.71	0.47	0.65	0.05	0.09	0.04
2006	0.71	0.47	0.64	0.06	0.09	0.04
2007	0.74	0.48	0.66	0.06	0.08	0.04
2008	0.79	0.51	0.73	0.06	0.07	0.04
2009	0.8	0.51	0.74	0.05	0.07	0.04

Panel E - US

Production

	Sales (Revenues) (Million Dollars)			Return on Sales			COGS/Sales			SG&A/Sales		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	15097	27933	6908	0.12	0.09	0.1	0.69	0.19	0.73	0.17	0.12	0.14
2006	16267	29152	7733.8	0.12	0.09	0.11	0.68	0.19	0.73	0.18	0.12	0.14
2007	17553	30836	8238.5	0.12	0.1	0.1	0.68	0.19	0.72	0.17	0.12	0.14
2008	19067	34742	8874.2	0.11	0.1	0.1	0.69	0.2	0.73	0.17	0.13	0.14
2009	16327	26301	7712.1	0.09	0.12	0.08	0.69	0.2	0.72	0.18	0.13	0.15

Financials

	Cash/Sales			Finance/Sales			Dividend/Assets			LT Debt/Assets			Equity Issuance/Assets		
	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median	Mean	Std	Median
2005	0.11	0.15	0.05	-0.02	0.15	-0.02	0.02	0.03	0.01	0.22	0.15	0.19	0.02	0.03	0.01
2006	0.1	0.13	0.05	-0.02	0.17	-0.03	0.02	0.03	0.01	0.23	0.17	0.19	0.02	0.03	0.01
2007	0.09	0.13	0.05	-0.03	0.14	-0.03	0.02	0.08	0.01	0.24	0.2	0.21	0.01	0.02	0.01
2008	0.09	0.11	0.05	-0.02	0.09	-0.02	0.02	0.03	0.01	0.26	0.21	0.24	0.01	0.01	0
2009	0.14	0.15	0.09	-0.03	0.1	-0.03	0.02	0.02	0.01	0.26	0.19	0.24	0.01	0.02	0

Investment

	PP&E/Assets			Investment/Sales		
	Mean	Std	Median	Mean	Std	Median
2005	0.55	0.35	0.5	0.09	0.16	0.05
2006	0.55	0.35	0.5	0.1	0.19	0.05
2007	0.55	0.35	0.5	0.09	0.16	0.05
2008	0.58	0.37	0.53	0.09	0.12	0.05
2009	0.59	0.39	0.56	0.08	0.13	0.04

Table 5: Comparison of productivity around the financial crisis - U.S. vs. other countries

	Return on Sales			CGS/Sales			SGA/Sales		
	Levels (07)	Diff (09-07)	Diff (09-08)	Levels (07)	Diff (09-07)	Diff (09-08)	Levels (07)	Diff (09-07)	Diff (09-08)
Germany	7.0%	-3.6%	-2.9%	69%	1.9%	1.4%	18%	1.0%	0.9%
Matched US	11.3%	-2.9%	-1.6%	66%	0.4%	-0.2%	20%	1.8%	1.3%
Diff-in-Diff		-0.7%	-1.3%		1.5%	1.6%		-0.8%	-0.4%
t-stat		*-0.94*	*-2.25*		*2.74*	*3.42*		*-1.72*	*-1.16*
p-value		*0.351*	*0.026*		*0.007*	*0.001*		*0.088*	*0.248*
p-value (Wilcoxon)		*0.2509*	*0.0688*		*0.0157*	*0.0031*		*0.222*	*0.2797*
Japan	6.3%	-3.3%	-1.9%	76%	3.5%	1.9%	17%	1.5%	0.5%
Matched US	9.8%	-2.5%	-1.0%	67%	0.4%	-0.6%	20%	1.3%	0.9%
Diff-in-Diff		-0.9%	-0.9%		3.1%	2.4%		0.2%	-0.003
t-stat		*-2.2*	*-2.060*		*7.1*	*5.91*		*1.05*	*-2.200*
p-value		*0.028*	*0.040*		*0.000*	*0.000*		*0.300*	*0.028*
p-value (Wilcoxon)		*0.010*	*0.000*		*0.000*	*0.000*		*0.000*	*0.018*
France	10.0%	-2.3%	-1.7%	70%	1.2%	0.6%	22%	0.9%	0.9%
Matched US	10.6%	-1.5%	-0.6%	68%	-0.2%	-0.6%	18%	1.1%	0.7%
Diff-in-Diff		-0.8%	-1.1%		1.4%	1.2%		-0.2%	0.2%
t-stat		*-0.91*	*-1.51*		*2.09*	*1.98*		*-0.33*	*0.46*
p-value		*0.3655*	*0.1318*		*(0.038)*	*(0.048)*		*0.74*	*0.643*
p-value (Wilcoxon)		*0.4622*	*0.3586*		*0.0854*	*0.1457*		*0.8151*	*0.2899*
UK	13.4%	-2.3%	-1.7%	62%	2.0%	0.7%	21%	0.4%	0.5%
Matched US	11.3%	-1.8%	0.3%	65%	0.0%	-1.3%	20%	1.2%	0.4%
Diff-in-Diff		-0.5%	-1.9%		2.0%	2.1%		-0.9%	0.1%
t-stat		*-0.72*	*-3.04*		*2.84*	*2.88*		*-1.75*	*0.36*
p-value		*0.470*	*0.003*		*0.005*	*0.004*		*0.081*	*0.722*
p-value (Wilcoxon)		*0.4007*	*<.0001*		*0.0008*	*<.0001*		*0.0179*	*0.2177*

Table 6: Comparison of financial structure around the financial crisis

	Cash/Sales			LT Debt to assets			Dividend to assets			Equity issue to assets		
	Levels (07)	Diff (09-07)	Diff (09-08)	Levels (07)	Diff (09-07)	Diff (09-08)	Levels (07)	Diff (09-07)	Diff (09-08)	Levels (07)	Diff (09-07)	Diff (09-08)
Germany	9.4%	3.1%	4.2%	12%	-0.8%	-0.4%	2.2%	-0.5%	-0.2%	1.0%	0.5%	1.0%
Matched US	9.4%	5.0%	5.4%	23%	3.2%	-0.7%	1.8%	-0.6%	-0.5%	1.1%	-0.3%	0.2%
Diff-in-Diff		-1.9%	-1.2%		-4.1%	0.3%		0.2%	0.2%		0.8%	0.8%
t-stat		*-1.41*	*-1.07*		*-3.55*	*0.36*		*0.2*	*0.86*		*1.42*	*1.24*
p-value		*0.160*	*0.287*		*0.001*	*0.716*		*0.839*	*0.392*		*0.156*	*0.216*
p-value		*0.2196*	*0.4806*		*0.0055*	*0.785*		*0.1113*	*0.0882*		*<.0001*	*0.0035*
Japan	10.6%	3.5%	3.5%	11.8%	2.5%	1.6%	0.9%	-0.1%	-0.3%	0.2%	0.1%	0.2%
Matched US	11.2%	5.1%	6.0%	20.6%	1.8%	-1.5%	2.3%	-0.7%	-0.3%	1.3%	-0.3%	-0.4%
Diff-in-Diff		-1.6%	-2.5%		0.7%	0.03		0.5%	0.0%		0.4%	0.6%
t-stat		*-1.92*	-4.22		*1.27*	7.65		*1.37*	*0.02*		*2.6*	*1.99*
p-value		*0.0552*	<.0001		*.2034*	<.0001		*0.1701*	*0.9846*		*0.0093*	*0.0473*
p-value		*0.007*	*<.0001*		*0.002*	*<.0001*		*0.015*	*<.0001*		*<.0001*	*<.0001*
France	12.5%	3.8%	3.6%	15%	-1.5%	-1.0%	2.3%	-0.4%	-0.4%	0.9%	-0.2%	0.4%
Matched US	10.4%	10.6%	8.5%	26%	1.9%	-1.4%	2.1%	-0.8%	-0.5%	1.2%	-0.1%	0.5%
Diff-in-Diff		-6.8%	-4.9%		-3.4%	0.5%		0.3%	0.1%		-0.2%	-0.1%
t-stat		*-1.47*	*-2.22*		*-3.35*	*0.75*		*6.83*	*0.3*		*-0.36*	*-0.29*
p-value		*0.1423*	*0.0273*		*0.001*	*0.4565*		*<.0001*	*0.7666*		*0.7168*	*0.7703*
p-value		*0.2861*	*0.0177*		*<.0001*	*0.3908*		*0.4651*	*0.0582*		*0.0001*	*0.0024*
UK	11.4%	0.5%	0.1%	12%	-0.6%	-0.2%	4.0%	-1.1%	-0.1%	2.1%	-0.4%	0.8%
Matched US	9.6%	7.3%	5.8%	38%	-1.4%	-3.7%	7.4%	-6.3%	-1.0%	1.4%	-0.4%	-0.2%
Diff-in-Diff		-6.8%	-5.6%		0.8%	3.5%		5.2%	0.9%		0.0%	1.0%
t-stat		*-2.56*	*-4.18*		*0.89*	*4.69*		*2.05*	*1.26*		*-0.02*	*1.81*
p-value		*0.011*	*<.0001*		*0.372*	*<.0001*		*0.041*	*0.208*		*0.987*	*0.072*
p-value		*<.0001*	*<.0001*		*0.6348*	*<.0001*		*0.0145*	*0.1118*		*0.0077*	*0.1853*

Table 7: Comparison of investment around the financial crisis - U.S. vs. other countries

	PPE/Assets		
	Levels (07)	Diff (09-07)	Diff (09-08)
Germany	0.60	0.027	0.028
Matched US	0.56	0.045	0.024
Diff-in-Diff		-0.018	0.004
t-stat		-1.220	0.310
p-value		0.225	0.755
p-value (Wilcoxon)		0.868	0.464
Japan	0.74	0.062	0.004
Matched US	0.52	0.041	0.013
Diff-in-Diff		0.021	-0.009
t-stat		3.100	-2.280
p-value		**0.002**	**0.023**
p-value (Wilcoxon)		**0.000**	**0.004**
France	0.52	0.019	0.009
Matched US	0.55	0.040	0.026
Diff-in-Diff		-0.020	-0.017
t-stat		-1.000	-0.990
p-value		0.318	0.323
p-value (Wilcoxon)		0.756	0.641
UK	0.53	0.028	0.033
Matched US	0.59	0.053	0.019
Diff-in-Diff		-0.025	0.013
t-stat		-2.170	1.640
p-value		**0.031**	0.101
p-value (Wilcoxon)		**0.022**	**0.096**

Table 8: Sources for differences in productivity decisions

The table shows regression results of changes in return on sales between 2007 and 2009 on changes in LT Debt/Asset, dividend/assets, cash/sales and sales over the same period. The sample for each regression is the US firms with their matched non-US firms. Δ(LT Debt/Asset 2007) is the difference between LT Debt/Asset of the US firm and its non-US counterpart. The variables Δ(Div/Asset 2007) and Δ(Cash/Sales 2007) are defined similarly. The definitions of the financial ratios appears in the appendix. The variable Δ(Sales) is (Sales US 2009 – Sales US 2007) – (Sales Non US 2009-Sales Non US 2007). *, **, *** represents significance at the 1%, 5%, and 10% levels respectively.

	UK						Japan					
	1		2		3		1		2		3	
Intercept	-0.022	***	-0.006		-0.004		-0.038	***	-0.028	***	-0.028	***
	0.008		0.010		0.012				0.004		0.005	
Δ(LT Debt/Asset 2007)			-0.078	***	-0.079	***			-0.033	*	-0.033	*
			0.029		0.029				0.020		0.020	
Δ(Div/Asset 2007)			0.136	**	0.137	**			0.064	*	0.064	
			0.057		0.057				0.046		0.046	
Δ(Cash/Sales 2007)			0.049		0.050				0.024		0.024	
			0.038		0.038				0.025		0.025	
Δ(Sales)					0.007						0.001	
					0.021						0.014	

	France						Germany					
	1		2		3		1		2		3	
Intercept	-0.013	*	-0.004		-0.003		-0.015	***	-0.013	**	-0.013	**
	0.007		0.007		0.007		0.005		0.006		0.006	
Δ(LT Debt2007)			-0.086	***	-0.089	***			-0.024		-0.024	
			0.028		0.029				0.026		0.026	
Δ(Div/Asset 2007)			-0.079		-0.077				0.087		0.088	
			0.117		0.117				0.062		0.065	
Δ(Cash/Sales 2007)			-0.046		-0.047				0.140	***	0.140	***
			0.033		0.033				0.042		0.042	
Δ(Sales)					0.021						-0.001	
					0.027						0.019	

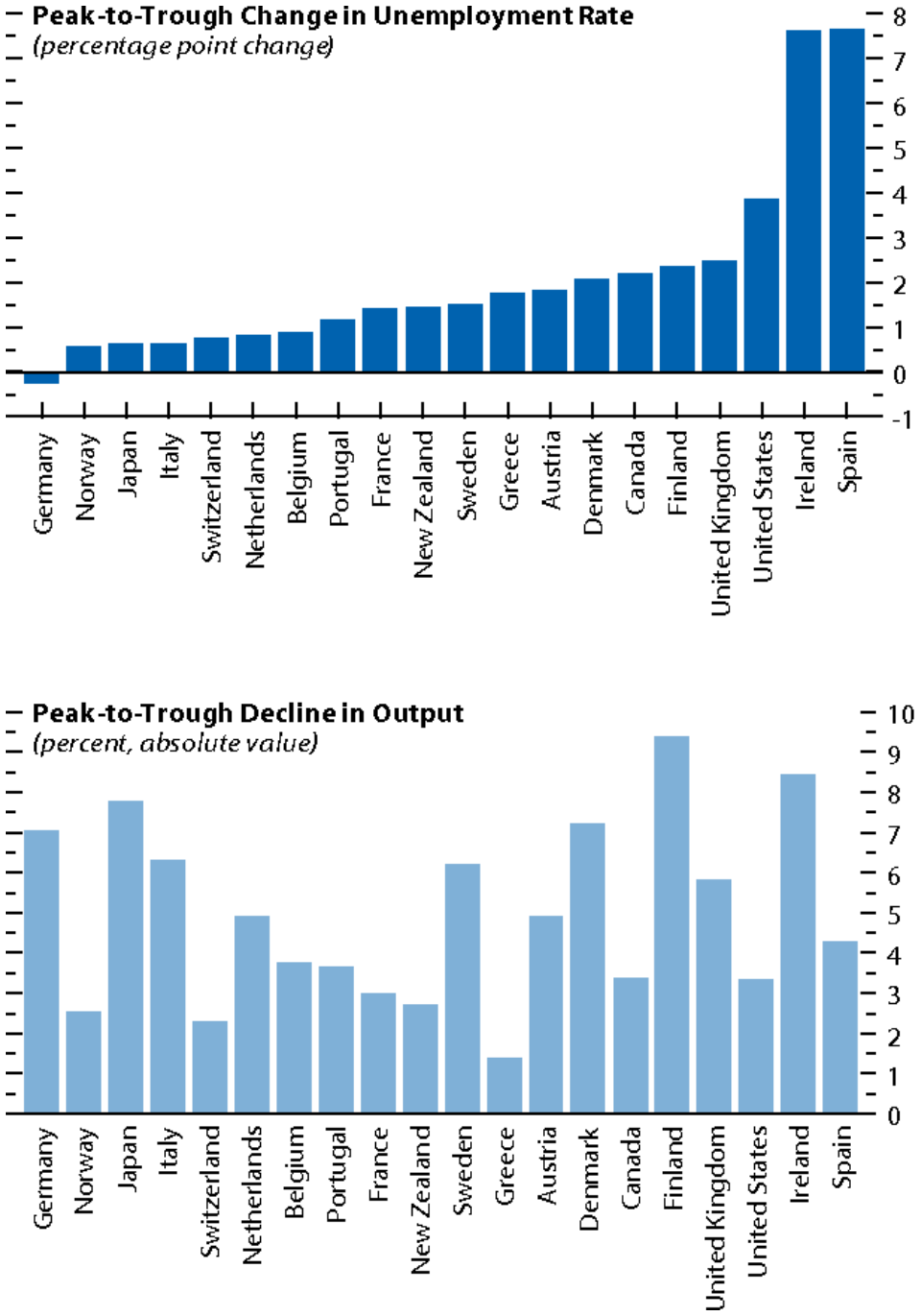
Table 9: Cost cutting and country-level governance

The table shows regression results of changes in COGS to sales between 2007 and 2009 on changes in LT Debt/Asset, dividend/assets, cash/sales and sales over the same period. The sample for each regression is the US firms with their matched non-US firms. Δ(LT Debt/Asset 2007) is the difference between LT Debt/Asset of the US firm and its non-US counterpart. The variables Δ(Div/Asset 2007) and Δ(Cash/Sales 2007) are defined similarly. The definitions of the financial ratios appears in the appendix. The variable Δ(Sales) is (Sales US 2009 – Sales US 2007) – (Sales Non US 2009-Sales Non US 2007). Labor intensiveness is the aggregate number of employees in a particular industry, divided by the aggregate sales in the industry – all measured over Compustat firms in the year 2007. **, *** represents significance at 5%, and 10% levels respectively.

	Germany							
	1		2		3		4	
Intercept	-0.015	***	-0.013	**	-0.013	**	0.003	
	0.005		0.006		0.006		0.014	
Δ(LT Debt/Asset 2007)			-0.024		-0.024		-0.031	
			0.026		0.026		0.027	
Δ(Div/Asset 2007)			0.087		0.088		0.089	
			0.062		0.065		0.065	
Δ(Cash/Sales 2007)			0.140	***	0.140		0.136	***
			0.042		0.042		0.042	
Δ(Sales)					-0.001		0.004	
					0.019		0.020	
Labor intensiveness							-4.536	
							3.711	

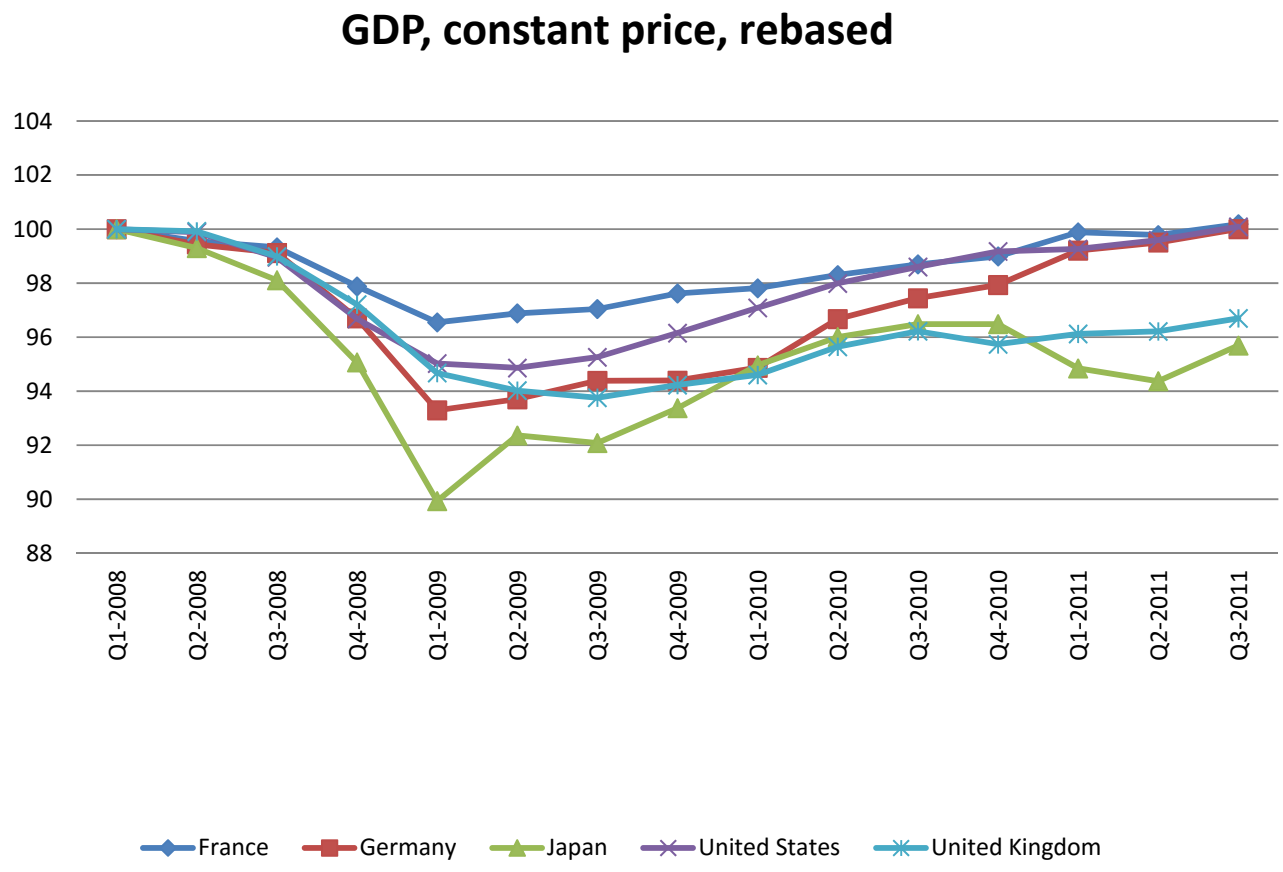
	Japan							
	1	1		2		3		
Intercept	-0.022	-0.038	***	-0.028	***	-0.028	***	-0.027	***
	0.008			0.004		0.005		0.009	
Δ(LT Debt 2007)				-0.033	*	-0.033	*	-0.033	*
				0.020		0.020		0.020	
Δ(Div/Asset 2007)				0.064		0.064		0.066	
				0.046		0.046		0.049	
Δ(Cash/Sales 2007)				0.024		0.024		0.024	
				0.025		0.025		0.025	
Δ(Sales)						0.001		0.000	
						0.014		0.014	
Labor intensiveness								-0.259	
								2.101	

Figure 1



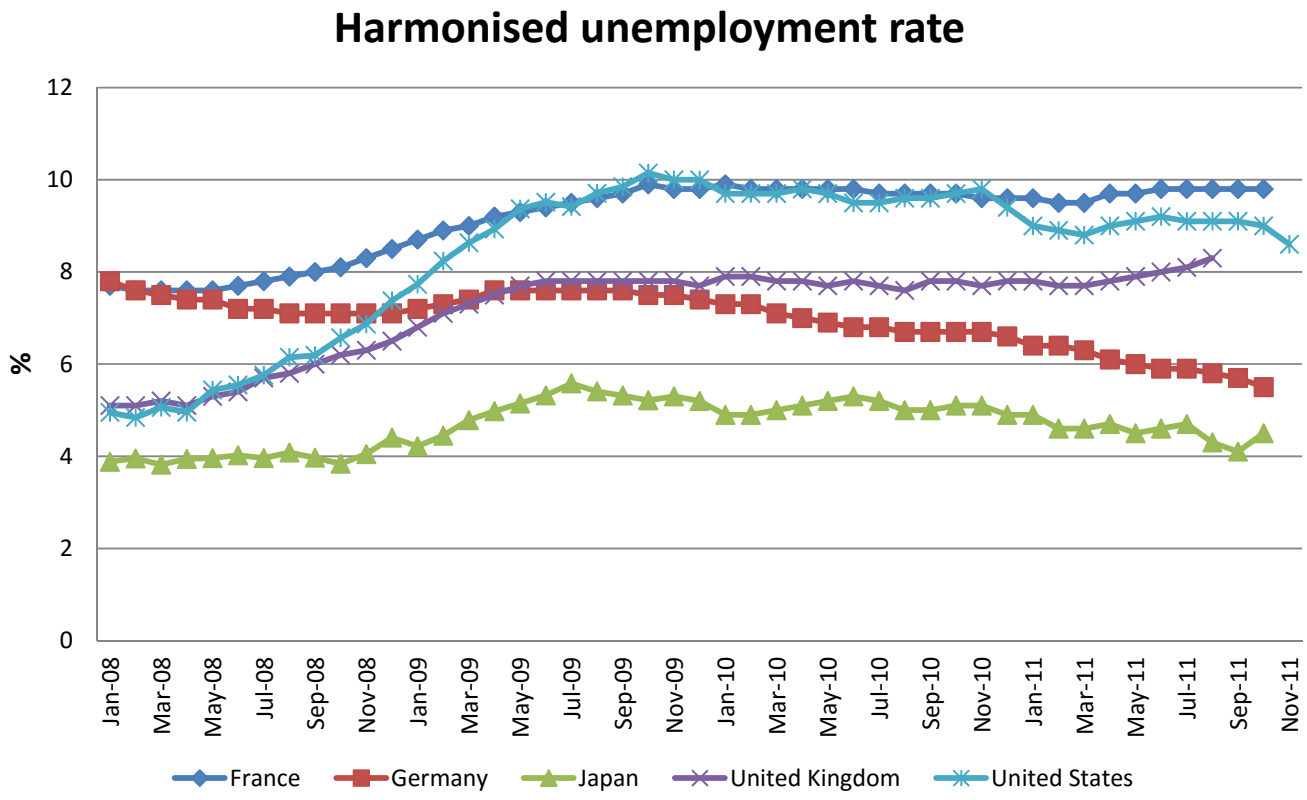
Based on Figure 3.1 on p. 70 of IMF (2010).

Figure 2



Source: OECD

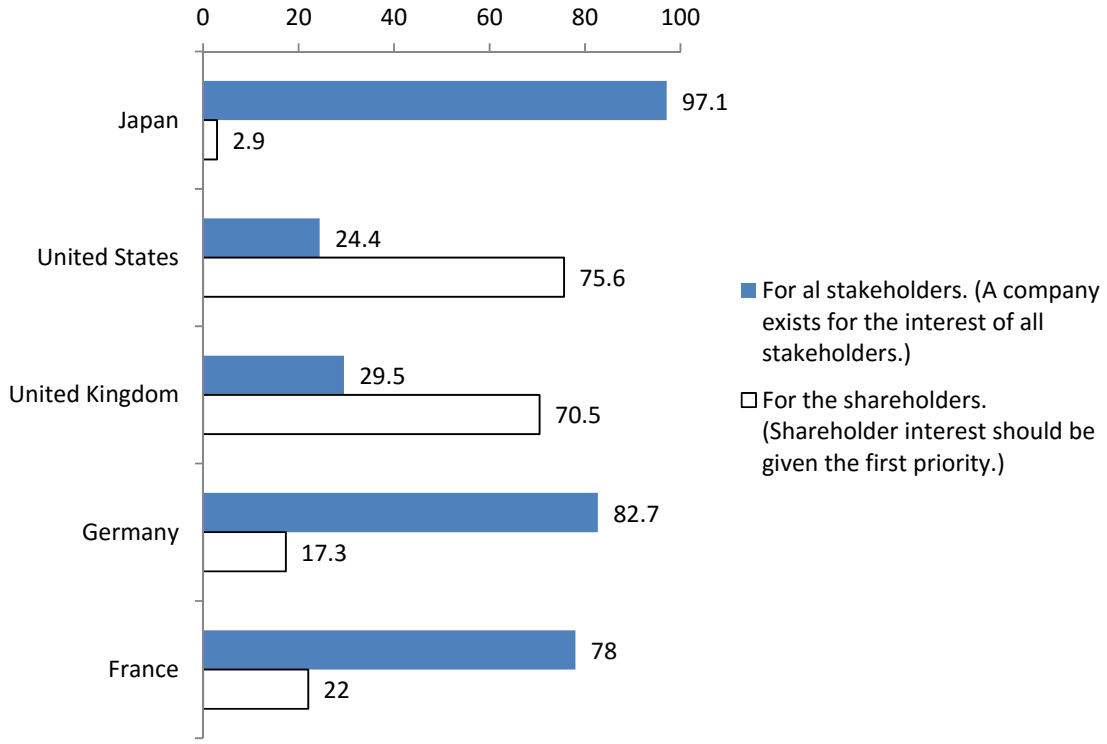
Figure 3



Source: OECD

Figure 4

Whose Company is it?

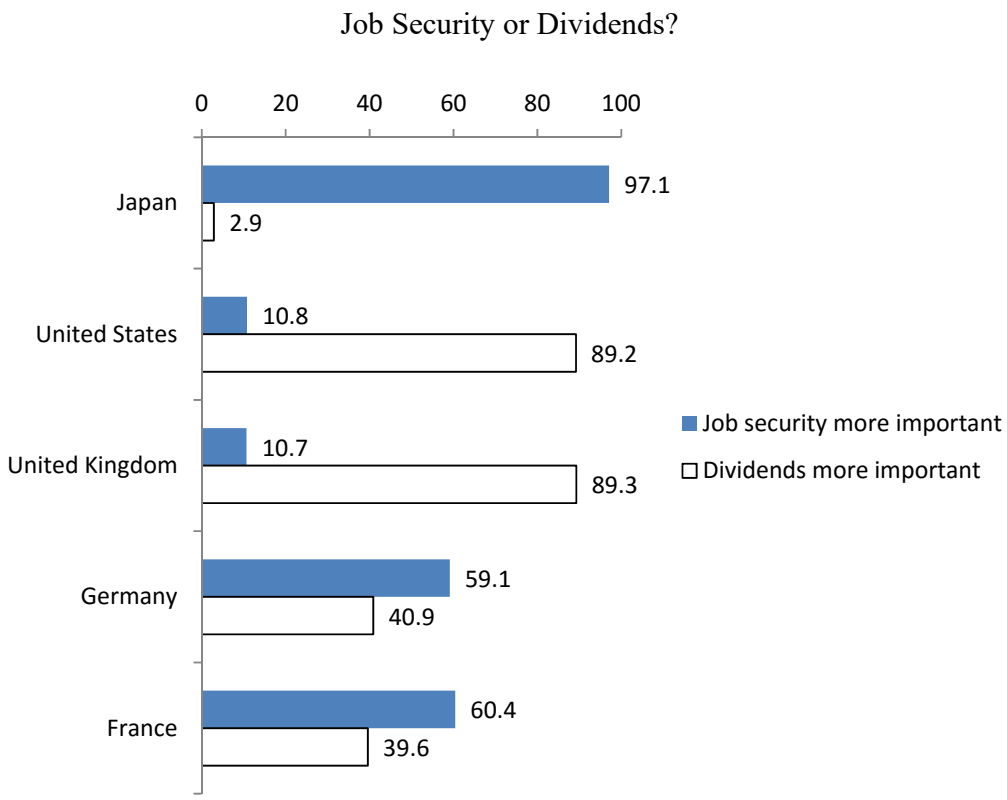


Number of firms surveyed: Japan, 68; United States, 82; United Kingdom, 87; Germany, 110; France, 50.

Source: Masaru Yoshimori, "Whose Company Is It? The Concept of the Corporation in Japan and the West." Long Range Planning. Vol. 28, No. 4, pp 33-44, 1995.

From: Institute of Fiscal and Monetary Policy (1996), Chart III-2, p. 57.

Figure 5



Number of firms surveyed: Japan, 68; United States, 83; United Kingdom, 75; Germany, 105; France, 68.

Source: Masaru Yoshimori, "Whose Company Is It? The Concept of the Corporation in Japan and the West." Long Range Planning. Vol. 28, No. 4, pp 33-44, 1995.

From: Institute of Fiscal and Monetary Policy (1996), Chart III-4-6, p. 84.

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

ECGI Working Paper Series in Finance

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.org/wp) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html