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ABSTRACT

This paper reexamines Japanese policy choices during its banking crisis in the 1990s and draws some lessons relevant for the U.S. and Europe in the aftermath of the global financial crisis of 2007-2009. The paper focuses on two aspects of post-crisis economic policy of Japan: the delay in bank recapitalization and the lack of structural reforms. These two policy shortcomings retarded Japan's recovery from the crisis and were responsible for its stagnant post-crisis growth. The paper also suggests some political economy factors that contributed to the Japanese policies. In France, Italy, and Spain bank recapitalization has been delayed and the structural reforms have been slow. Without drastic changes, they are likely to follow Japan's path to long economic stagnation. The situation in Germany looks somewhat better mainly because the structural reform was already advanced before the crisis. Although the recovery has been slow in the U.S. as well, the problems are at least different from those faced by Japan then and many European countries now.

Introduction

It has been five years since the failure of Lehman Brothers and the associated financial market chaos, but the U.S. and Europe are not yet back to what had looked normal prior to the crisis. Japan, having had its own major financial crisis starting in 1997, offers a laboratory for studying the hangover from a crisis.

We show that there are a variety of macroeconomic similarities between the post-2008 developments in the U.S. and Europe and the post 1997 outcomes in Japan. This motivates us to explore three questions in detail. First, what exactly went wrong in Japan that led to its notoriously long stagnation after its crisis? While the buildup to the crisis occurred for many reasons, we argue that once the crisis had begun there were two critical mistakes made by the authorities. One was failure to rehabilitate the banks. The other was mistaking the nature of future problems facing the economy. Instead of recognizing that major structural adjustments were needed, much of the policy response was calibrated under the assumption that Japan faced a simple cyclical problem that could be addressed with indiscriminate fiscal stimulus. We then explain how these policies contributed to the slow recovery and long stagnation of the economy.

This analysis leads us to an obvious next question, why were these policy choices made in Japan? In each case there were multiple contributing factors. But several of them are potentially relevant for other countries. The hesitation in recapitalizing the banks was in part due to the unpopularity of a previous bank rescue. But it also seems to have been related to a reluctance to announce the size of the losses for fear of triggering a panic and over the reputational consequences of acknowledging past supervisory lapses. These problems were eventually overcome when a new supervisory structure was put in place and enforced.

The failure to confront the structural problems was no doubt partially due to politicians' unwillingness to restructure during a period of weak growth. Rationalizing regulations and ending subsidies would have inflicted hardship on the beneficiaries of the existing system. We then explain why the political system had produced and sustained these forms of protection and describe some the consequences of these choices.

Finally, we ask whether the same forces that led to counterproductive policies in Japan have been observed in the U.S. and Europe. The relevance to the U.S. is limited in part because the U.S. made more progress in dealing with its banking system problems than did Europe or Japan. Europe appears to have many of the same obstacles that prevented banking reform as in Japan. The structural challenges in many European countries are also more similar to the Japanese problems than are the challenges for the U.S. These observations lead us to conclude that Europe (with a possible exception of Germany) is indeed heading towards a lost decade.

The approach we take in this paper is inspired by similar historical cases studies by Stanley Fischer. Fischer (1987) aimed "to draw lessons for monetary policy from the recent historical record." In that paper Fischer examined the details of monetary policies in the U.S.,

Japan, Germany, and the U.K. to understand how different monetary policy choices in these countries influenced macroeconomic performances. Dornbusch and Fischer (1986) looked at "four successful stabilizations from high inflation -- Germany in 1923, Austria in 1922, in Poland 1924-27, Italy 1947 -- and two [then] ongoing attempted stabilization in Israel and Argentina, with the aim of identifying general lessons from those episodes." We follow in this tradition of looking to specific past episodes to inform a current debate.

The remainder of the paper is organized in four sections (plus a brief conclusion). The first establishes the similarities and differences between Japan, the U.S. and Europe in the wake of their respective crises. The next section is our case study of the aftermath of the crisis in Japan. We focus on the key decisions made after the banking troubles had surfaced and try to understand the consequences of these choices. The third section investigates the reasons behind the Japanese policy choices. We find that both economic conditions and politics played an important role. The fourth section looks for analogies between the precipitating factors that led to the Japanese policy choices and conditions in the U.S. and Europe. We separately look at the banking conditions and the other potential impediments to growth. The similarities to Europe seem much stronger than to the U.S. Section 5 ends with a brief conclusion.

1. Post Crisis Outcomes

We start by comparing the economic situation in Japan right after its financial crisis to the conditions after the recent crisis U.S. and Europe. Hoshi and Kashyap (2010) document many similarities in the evolution of the financial and political aspects of US and Japanese crises and argue that the global financial crisis reached its peak in 2008 and the financial crisis in Japan reached its peak in 1997. Here we compare a number of macroeconomic indicators around the peaks.

We are not the first one to point out the similarities of experiences after financial crises around the world. For example, Reinhart and Rogoff (2009a) document many similarities of many financial crises across countries and time, including the ones that we focus on below. Nonetheless, we find it useful to document the extent to which the most recent global financial crisis resembles the Japanese crisis, because it allows us to focus on the most relevant lessons from the Japanese experience.[1]

First, many countries that suffered from the global financial crisis experienced sharp appreciation of real estate prices before the crisis and equally sharp decline after the crisis. Figure 1 shows house price indices for Japan, the U.S., U.K., Germany, France, Italy and Spain around the peak of crisis. The peak year of the crisis is denoted as year 0 and the house price index in year 0 is normalized to be 100. Japan looks different from the other countries because

[1] Schaltegger and Weber (2013) also compare the current Europe to Japan in the 1990s and find many similarities.

by the time the financial crisis reached its peak, the housing prices had already been declining for several years. After the peak of the crisis, however, the Japanese real estate price continued to decline in a way similar to the other countries.

Second, the financial crisis eroded the capital of financial institutions, and many countries were slow to force a recapitalization of their financial institutions. Table 1 shows estimates made by the International Monetary Fund in October 2009 on the estimated undercapitalization at the end of 2010 for the U.S. and European countries. As comparison, the last column in the table shows estimates from Hoshi and Kashyap (2010) on the degree of undercapitalization of Japanese banks as of the end of March 2001. The U.S. banks started to replenish capital much earlier than their European counterparts. By the end of the second quarter of 2009, the U.S banks were expected to raise $500 billion, which exceeds the estimated amount raised in the euro area, the UK, Denmark, Iceland, Norway, Sweden, and Switzerland combined,. Even in the U.S. this amount of capital replenishment left the banks weaker than would be desirable to support the lending needed to facilitate a recovery. Instead, both the US and European banks would satisfy the minimum regulatory capital ratio requirements by partly reducing their risk weighted assets; one important reason for computing the simple ratio of capital to total assets is that manipulating the composition of assets in order to exploit differences in risk weights does not disguise the capital deficit. Japanese banks experienced capital shortage of the similar magnitude after their financial crisis, and we explore that in much greater detail in the next section.

Third, all the countries experienced a sharp decline of real GDP and slow recovery after the crisis. Figure 2 shows how the real GDP fluctuated around the crisis. Again the peak year of the crisis is denoted as year 0 and the real GDP (in local currency) in year 0 is normalized to be 100. The figure shows the GDP fell immediately after the onset of the crisis. Although the economy rebounded after the initial decline, the growth rate is substantially below the trend prior to the crisis. One exception to this pattern (and many of the ones in the subsequent figures) is Germany, which seems to have returned to the pre-crisis trend in a couple of years after the crisis. In contrast Italy and Spain by the end of 2012 had not even recovered to the pre-crisis level of GDP.

The second and the third points are related. As many studies including Reinhart and Rogoff (2009a) and Jordà, Schularick and Taylor (forthcoming) show, recessions that follow financial crises are associated with higher output losses. Fischer (2011) explains this succinctly:

> This is not coincidental, for the collapse of the financial system not only reduces the efficiency of financial intermediation but also has a critical effect on the monetary transmission mechanism and thus on the ability of the central bank to mitigate the real effects of the crisis. (Fischer, 2011, p.3)

Fourth, Figure 3 shows that the unemployment rate rose steadily with the onset of the crisis. Germany is again the exception, where the unemployment rate actually fell. The increase was especially sharp for Spain and the U.S. Reinhart and Rogoff (2009b) find that after 18

systemic financial crises, the unemployment rate rose by an average of 7 percentage points. In all these countries, the employment situation deteriorated most substantially for young workers.

Fifth, fiscal policy was expanded in many countries following the financial crisis. This contributed to chronic deficits and rising levels of debt. Figure 4 shows the growth in the ratio of gross debt to GDP ratio for each country. The pattern of rising debt burdens after the crisis is especially clear for Spain and the U.K, although the growth rate of the government debt observed here is somewhat less than the historical average for many banking crises that Reinhart and Rogoff (2009a) report. According to their study, the government debt on average increases by 86% during the three years after the crisis (Figure 10.10). The increase is less clear for Japan and Italy. For Japan, the increasing trend of the government debt had begun when the economy first slowed in 1992, so the level was already rising prior to the crisis. Similarly, Italy had high accumulation of government debt already before the crisis, which may have made it difficult for them to expand fiscal policy after the crisis. The net debt to GDP ratio, which is not shown here, exhibits similar patterns.

An important reason for the increasing budget deficit and government debt is the increased government transfers to the elderly as a result of aging. As Figure 5 shows, the pace of aging around the crisis was especially fast for Japan. Thus, the demographic challenge that Japan faced was more serious than the ones for the other countries.

Finally, the recession that followed the crisis resulted in downward price pressures, but Japan was the only country that fell into deflation. The difference between Japan and the other countries is likely to be a result of the different responses to the crisis by the central banks. In Japan interest rates were already very low for several years prior to the crisis so a large reduction in interest rates was not possible. The other countries aggressively cut interest rates as the crisis began. The Bank of Japan also barely increased the size of its balance sheet in the wake of the Japanese crisis. In contrast, the Federal Reserve, the Bank of England and the European Central Bank all expanded their liabilities substantially starting within a year of the crisis.

To summarize, we take 5 lessons from these figures. First, Germany's experience is very different than the other countries. For the rest of the paper we will be careful to exempt Germany from generalizations about European conditions where it is appropriate. As we describe later, between 2003 and 2007 Germany undertook a number of structural reforms to overhaul its labor market and to increase competition.

Second, real estate prices in all the countries ran up substantially before the crisis. In the UK, the dip afterwards was temporary and modest, but in the other countries the reversal was pronounced. Not surprisingly, the banking systems in all countries were weakened. Aside from the U.S. there was a large hangover in the financial system that was not cleaned up for several years.

Third, the countries all experienced anemic growth with deteriorating labor market conditions. As van Wijnbergen and Homar (2013) show, these patterns are common to most episodes after a financial crisis.

Fourth, after the crises, monetary and fiscal stimulus were deployed everywhere. The results, however, were mixed. Aside from Japan, these measures were successful in preventing deflation. But in all the countries (save Germany) unemployment rose and growth fell. While it is too early to say for sure, it also appears that the trend GDP growth may have even slowed.

Finally, it appears that the banking sectors were slow to heal. The simple figures presented so far do not allow us to isolate the adverse effects of weak economic conditions, from the insufficient actions taken to address the losses that materialized during the crisis. The U.S. was relatively aggressive in forcing banks to raise additional capital, while Japan and Europe were less determined. But even in the U.S., a serious capital shortage in the banking sector remained a couple of years after the crisis.

2. The post-crisis experience in Japan

With the basic comparative facts in hand, we now turn to a detailed case study of the Japanese experience. We focus specifically on the policy choices made by the government and the role they played in delaying recovery. While many factors contributed to Japan's stagnation, we argue that there were two fundamental conceptual errors that were responsible for most of the problems. We then explore the reasons for these mistakes.

2.1 Failing to recapitalize the banks

The first critical error was failing to clean up bank balance sheets and recapitalize the banks. We wrote about this problem for the first time in 1999 (Hoshi and Kashyap, 1999). It was already clear then that Japanese banks were seriously undercapitalized even after two rounds of capital injections into large banks using public funds. Our review of the various estimates as of mid-1999 pointed to optimistic official estimates of 3.5 percent of GDP of unrecognized losses, and contrasted these to estimates from various private sector analysts suggesting impending loan losses of twice that size. We pointed out at that time the government was reluctant to address the problem and cited various contemporaneous news accounts documenting that hesitation.

By the end of 2001, the market also started to worry about the health of large Japanese banks once again. Ito and Harada (2006) show that the CDS spreads for major Japanese banks fell right after the public capital injection of 1999 but started to rise again and settled at between 150 to 200 basis points toward the end of 2001. The CDS rates remained elevated until September 2002 (the end of the sample period for this study).

Kashyap (2002) reviews a number of estimates of undercapitalization of Japanese banks. He also conducted a survey of leading Japanese bank analysts and private sector economists asked them to estimate the difference between the market value of assets and liabilities of the Japanese banks. These responses clustered around 4 percent of GDP (20 trillion yen). Hence to move the banks from having negative net worth to being adequately capitalized would have taken about twice that amount. Paul Sheard in his response to the survey emphasized that the Deposit Insurance Fund had resources that were equal to about 10 percent of GDP, meaning that the funding was available. So it was an open secret that even five years after the acute part of Japan's banking crisis the banks remained seriously undercapitalized.

There is also a very large literature analyzing the misallocation of bank credit in Japan (see Sekine, Kobayashi, and Saita (2003) for a survey). One very convincing demonstration comes from Peek and Rosengren (2005) who show that poor performing firms were more likely than better performing firms to receive additional bank credit. They attribute this tendency to banks' desire to avoid loss recognition. They find that this behavior is most pronounced for banks that are close to the regulatory minimum level of capital. They note that for existing equity holders rolling over a loan rather than foreclosing is rational because foreclosing on a bad loan locks in a loss and requires the bank to find additional equity financing to comply with minimum capital requirements. As we discuss in the next section, the government may also have reason to allow under-performing firms to survive.

Caballero, Hoshi and Kashyap (2008) offer a model and some evidence showing how this perverse behavior can create slow aggregate growth. They start by showing a rise in lending to the corporations that appear to be subsidized. This is difficult to prove since there is not standard data showing all aspects of bilateral loan contracts. So they rely on reported total interest payment made by firms. Their approach is to assume all firms are able to get funding at the most favorable possible rates on each type of borrowing that is undertaken; For example, if the highest rated firms are able to borrow at a 0.25 percent interest rate in the corporate bond market, then Caballero et al. (2008) assume that this rate would be available to all corporate bond issuers. By making similar assumptions for each category of borrowing, they construct the lowest possible amount of interest payments that a firm could reasonably be expected to pay. Firms that paid less than that amount of interest are assumed to be receiving subsidies. The subsidy is almost certainly coming from banks, since there is no reason to expect arms' length investors to offer unusually low credit terms.

They next present a model to analyze macroeconomic outcomes in an environment where unprofitable firms receive subsidies. In this situation, profitable firms will gain less market share than in a normal situation where struggling firms fail and release their workers and customers to the successful firms. More importantly, the better performing firms have less incentive to invest and raise employment because any attempt to expand can trigger a higher subsidy to the weak

firms. Over time the ongoing subsidies and the weak incentives for strong firms to grow create a persistent misallocation of resources that will harm overall productivity growth.

Caballero et al (2008) confirm these predictions by looking at the behavior of normal firms that do not appear to be receiving subsidized credit. They find that these firms invest less and add fewer workers when there are relatively more firms receiving subsidized credit in their industry. They also find that the regular firms have to have a higher productivity advantage relative to the subsidized firms to stay in business.

van Wijnbergen and Homar (2013) show that failure to recapitalize banks is generically associated with slower growth after a banking crisis. They study 65 crises since 1980 (including 25 since 2007). They find that among the recessions that occur after a severe banking crisis, those which are accompanied by major recapitalization is predicted to last 5 quarters, whereas failing to recapitalize leads to an expected duration of 14 quarters. They do not provide direct evidence on the mechanism which slows recovery, but speculate that this comes from gambling behavior by weak banks who continue to roll over credit to distressed firms.

One modest factor that probably contributed to problems in Japan was the ultra-low interest rate environment. With interest rates so close to zero, the required interest payments for most borrowers by the late 1990s were very low. This makes it easier to disguise a problem loan since many borrowers would easily be able to make the required interest payments and if granted an extension of the term of the loan could disguise problems indefinitely. If expected inflation had been higher, so that nominal interest rates might have been higher, then it likely would have been more challenging for the banks to disguise their bad loans and weak capital positions.

As Hoshi and Kashyap (2010) show, a turning point regarding the Japanese banking problems came in September 2002 when Heizo Takenaka was appointed as head of the Financial Services Agency and imposed a new strategy for dealing with the banking problems. Among other changes, he insisted that supervisors begin assessing loan quality based on discounted cash flow analysis, rather than relying purely on whether current interest payments were being made. He refused to allow banks to count deferred tax assets to count as bank capital in cases where the profitability of the banks was doubtful (and the hence the likelihood of getting the tax relief was unlikely). He also insisted that after these more rigorous inspections that banks that had capital deficits come up with detailed rehabilitation plans to improve their capital positions.

Takenaka's emphasis on recapitalization was quickly followed by actions backing up his goals. By early 2003, the major banks had begun raising new equity (usually via private placements). During the first half of 2003, the 4 largest banks in Japan raised 1.85 trillion of new equity (1 trillion yen by Mizuho Holdings, 450 billion yen by Sumitomo Mitsui Financial Group, and 300 billion yen by Mitsubishi Tokyo Financial Group, and 100 billion yen by UFJ Financial Groups). By August 2003, the 15 different financial groups (including five of the six large ones) were issued business improvement orders by the FSA for failing to meet their March

2003 profit targets. The banks were forced to update their plans for meeting goals each quarter, meant that some banks faced restrictions on pay and dividend dispersals, and in a few cases led to the termination of some bank CEOs and senior managers.

2.2 Failure to address structural growth problems

The second critical error made in Japan was the failure to recognize the need for important structural reforms to support growth. Instead, too much policymaking was focused on very short-term issues and many fiscal policy choices were aimed at near-term stimulus (or other politically motivated considerations).

To support this diagnosis, we present three pieces of data. Figure 6 shows the multi-year growth forecasts made by successive governments since 1992 (along with realized growth). These forecasts are intended to cover average growth over a budget planning horizon of 5 to 10 years. Each of the forecasts has overshot the growth outcomes. Frankel and Schreger (2013) compare growth forecasts made by governments in 24 countries with the actual outcomes and find that this kind of bias is pervasive: averaging 0.28% of GDP at the one-year horizon, 0.93% of GDP at the two-year horizon, and 1.90% at the three-year horizon.

Frankel and Schreger did not have Japan in their data set, but the Japanese forecasts during the 1990s and the 2000s look more optimistic than most of the countries in their sample. Every one of the planning documents missed the average growth rate by an average of more than 1 percent per year over the life of the plan. The misses are not purely due to short-term wishful thinking, the averages in years 3, 4 and 5 after the forecast were made are about the same.

The one exception to this pattern is the Koizumi government from 2001 to 2006, whose mantra was "no growth without reforms." The Koizumi plan included a caveat that the target of 1.5% was achievable only if a broad set of reforms were enacted. In fact, during the 3rd, 4th and 5th year of his administration the average growth rate was actually 1.87% per year.

But even the Koizumi agenda was relatively underwhelming in delivering growth-oriented reforms. One way to see this is to study the reform proposal that the government put forward shortly after coming to power. *The First Step in Changing Japan*, published by Koizumi government in September 2001, was a "road map for reform" with 35 major initiatives that the new administration argued was critical to revive the economy.[2] But a careful analysis of the specific proposals and the later efforts of the government to enact them suggest a poor record.

To reach this conclusion we looked at the proposals along two dimensions. First, we asked whether the reform if implemented as proposed would plausibly improve growth. We sorted the proposals based on whether they contribute to growth via capital, labor, energy or

[2] The English version of the document can be found at http://www5.cao.go.jp/keizai-shimon/english/pamphlet/0109pamphlet-e.pdf (accessed on September 22, 2013).

productivity improvements. We also separated the policies based on whether the mechanism by which they relate to growth was direct or indirect.[3] For example, a proposed deregulation that removed a hiring restriction would be judged to directly raise growth by increasing the amount of labor. Whereas a policy to improve the quality of child care facilities could indirectly boost growth if it allowed more people to work instead of staying home to look after the children. There is also the possibility that a policy, such as combatting soil pollution, would not be expected to have any effect on growth.

We also made judgments on how much progress was made towards achieving the goals. We did this by first trying to find progress reports on the different programs. We also looked at the reform program proposed by the Abe government in June 2013. We compared the suggestions made by Koizumi administration to those made by Abe administration. If a similar reform proposal was made in both programs, we took it as a *de facto* admission that the Koizumi reform had not succeeded in fully addressing the problem.

This analysis suggests that even the Koizumi administration, which was the most reform oriented and stable government since the 1997 crisis, lacked a focus on growth. We reckon that only 8 of the 35 specific initiatives they proposed would have directly boosted growth. In contrast, 16 of them might have indirectly supported growth and 11 would have no effect on growth.

The eight clearly pro-growth policies are listed in Table 2. We are struck by how modest the effect of many of the proposals would be in boosting potential growth. Most of them were implemented, but for six of the eight recommendations, that the Abe administration still advocates further related reforms.

Finally, notice that some of the policies that one might have expected are missing from the list. For instance, there was no mention of immigration, no reference to removing licensing restrictions that often hold back growth, and no attention on barriers to business formation. Japan still ranks below many other East Asian countries in the World Bank's Ease of Doing Business survey.

A second telling piece of evidence was the persistent tendency for the government to be convinced that the main problems facing the economy were short term and that they would soon be abating. For example, in February 1999, then Vice Minister of International Finance, Eisuke Sakakibara, was quoted as saying that the Japanese banking problems "would be over within a matter of weeks." Perhaps the most notorious example was the decision by the Bank of Japan in August 2000 to raise short-term interest rates. At the time of that decision, which was roundly

[3] This is obviously subjective. To do this each of us independently ranked the policies and in the vast majority of cases our assessments agreed. In cases where we did not agree we added a third rating by our research assistant and used her judgment to break the tie.

criticized by many observers including the representatives from the Ministry of Finance and the Economic Planning Agency, the Bank of Japan issued a statement stating:

> "Over the past one year and a half, Japan's economy has substantially improved, due to such factors as support from macroeconomic policy, recovery of the world economy, diminishing concerns over the financial system, and technological innovation in the broad information and communications area. At present, Japan's economy is showing clearer signs of recovery, and this gradual upturn, led mainly by business fixed investment, is likely to continue. Under such circumstances, the downward pressure on prices stemming from weak demand has markedly receded.
>
> Considering these developments, the Bank of Japan feels confident that Japan's economy has reached the stage where deflationary concern has been dispelled, the condition for lifting the zero interest rate policy."

In October 2000, the government announced its plan called "A Policy Package for New Economic Development toward the Rebirth of Japan". In the preface of the document, the government wrote[4]: "As a result of the swift and large-scale economic stimulus measures implemented by the Japanese government since 1998, the Japanese economy has averted the peril of falling into a deflationary spiral and is now gradually improving, after bottoming-out around the spring of 1999."

By January 2001, the Ministry of Finance had taken the optimistic view on board. The January monthly review states[5]: "Although the Japanese economy is still in a severe situation with meager improvements in the household sector, activities on the whole continue to rise modestly. The strength is seen mainly in the corporate sector, where autonomous nature of the recovery has become increasingly evident." Hence, until the arrival of the Koizumi government in April 2001, there was limited recognition of the structural challenges facing the Japanese economy.

Finally, consider the view of external observers of the Japanese economy. One easy way to summarize outside views is to look at estimates of the output gap for Japan made by the Organization of Economic Cooperation and Development (OECD); the gap is defined as the difference between their estimate of real GDP and their estimate of potential GDP (divided by the estimated potential GDP). While there are many challenges to estimating potential GDP, especially in a depressed economy like Japan's, we think these data do an adequate job of formalizing the impressions of many observers of the Japanese economy. In what follows, we will adopt the common convention of interpreting the gap as an indicator of the slack in the economy.

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[4] Retrieved from http://www5.cao.go.jp/2000/b/1019b-taisaku-e.html on June 24, 2013.
[5] Retrieved from http://www.mof.go.jp/english/pri/publication/mf_review/cy2001/330/330_07.htm on JUne 24, 2013.

These data come from a 2008 OECD project (Tosetto (2008)) that looked at how estimates of the output gap changed over time. The data presented in Figure 7 show estimates as of three dates. The series marked with diamonds represent the first published estimate, while the boxed entries show the estimates one year after the original estimate, and the triangle entries show the estimates as of 2008.

We note several interesting observations about these estimates. First, at the end of 1996 and 1997, the OECD judged that Japanese output was operating above potential, and the subsequent estimates suggest a larger positive gap than the initial estimate. In 2000, all three of the estimates put the economy at about full employment, so that the estimated gap is essentially zero. But in the two periods on either side of 2000, the economy is estimated to have slack and more importantly, the contemporaneous estimates of slack are bigger than the estimates constructed in 2008. The differences especially in 2001 and 2002 are substantial, over 1 percentage point. Only in 2003 and 2004, once the Koizumi policies were in place do the initial estimates look more optimistic than the subsequent ones.

This pattern is consistent with the following narrative. From the start of the crisis until 2002, the economy consistently looked weaker than it was later believed to be. For policymakers inside Japan this may have led them to think that during this period standard stimulus policies were necessary and sufficient to put the economy back on the growth path. But in fact potential growth was lower than they appreciated. Once the Koizumi government's reforms were underway, potential growth did start to improve, so that by 2003 and 2004, the amount of slack actually looks higher now than it did at the time.

Based on the foregoing evidence, we conclude that part of what went wrong in Japan was a misdiagnosis of the growth challenges facing the country. There were three important fallouts from having confused structural problems with a cyclical slowdown.

First, the form of fiscal policy that was pursued was more aimed at short-run stimulus than at raising long run growth. Much of the spending took the form of public works projects. Doi and Ihori (2009, Chapter 3) estimate the marginal productivity of public capital in five categories (roads, harbors, and airports; railways; postal services, telephone and telegraph; agriculture- related pubic capital and fishing ports; and flood control and forest conservation) over time. They find that during the 1950s and 1960s, the marginal productivity from all these kinds of investment was high. But the returns dropped over time and by the early 1990s the marginal productivity had become especially low for the three out of five groups (roads, harbors, and airports; agriculture-related pubic capital and fishing ports; and flood control and forest conservation).

Figure 8 (reprinted from Hoshi and Kashyap (2011)) shows the percentage of public spending devoted to each category from 1992 to 2003, along with the Doi-Ihori estimate of investment efficiency in 1991. Clearly resources were poured into the areas where productivity was already low. Total spending on the three categories of infrastructure totaled 213 trillion yen between 1992 and 2003 and amounted to 89% of the total public investment during this period – and to the extent it was debt financed added about 40 percentage points to the debt to GDP ratio.

If Japan's problem had purely been due to insufficient aggregate demand perhaps the form of spending that was undertaken prior to 2003 may not have been critical. But we have seen that growth outcomes were poor despite this splurge. Hence, the major consequence of this spending was to contribute to the big run up in debt that was documented in section 1 without raising potential growth. So by the time Mr. Koizumi's reforms were begun, the fiscal position of the country was noticeably weaker than it might otherwise have been.

Coincident with the increased spending by the government during the 1990s was the beginning of a reduction in investment by the private sector. Figure 9 (taken from Hoshi and Kashyap (2011) shows the shares of GDP for gross fixed capital formation (the broadest measure of private investment in the economy) and overall government spending. The investment share has trended down steadily since the early 1990s. Importantly, this is not just due to the reversal of the investment binge during the late 1980s. By 1997, as the crisis was starting, the share of investment was back to the level from the early 1980s, at around 20 percent. Since that time the share has dropped further toward 15 percent.

In addition, there is a remarkable negative correlation between the government spending relative to GDP and the share of private investment in GDP. During the "lost decade", 1993 to 2002, the correlation is -0.81, and over the whole sample it is -0.71. We do not mean to imply that the government spending increases *caused* the decline in private investment. There is no doubt that some of the spending increases were initiated because of weak state of private spending, including investment. But over the period of 20 years the pure reverse causality explanation for the correlation becomes less plausible. So it seems likely there was some crowding out.

A final consequence of the failure to deliver more sustainable growth is that the aging problems demonstrated in section 1 got worse. The share of the population above 65 was rising steadily, so that a six year delay meant a drop in the work force of a couple of percent. Even for those people who might have chosen to stay in the labor force past the normal retirement age, their productivity was probably lower than when they were younger. So when adjustments began there were fewer workers and more retirees to support.

3. Reasons behind the Japanese Policy Decisions

Our diagnosis of what happened in Japan raises the question of why the policies that turned out to hinder growth were chosen. Answering this is critical because it can help us understand whether similar forces that lead to these policy decisions are likely to be present in the U.S. and Europe.

3.1 Paralysis in Banking Reform

We see three factors that led to the delay in confronting the banking problems. The first was the public outrage that had come the last time there was a use of public funds to support troubled financial institutions. In the late 1980s, seven specialty housing finance lenders called *jusen* had run into trouble (see Milhaupt and Miller (2000) for details). The Ministry of Finance (MOF) assured the public (on multiple occasions) that no public funds would be used to rehabilitate them. But repeated reorganizations, using mostly private money from the banks which had founded them, failed to rehabilitate them.

So eventually in 1995 it was apparent that they had to be completely restructured – as of March 75% of the loans were non-performing and by September all seven were estimated to be insolvent. Over the course of the year the government convened negotiations to allocate losses. Ultimately, the government determined that a ¥6.41 trillion write-off would be needed. The negotiations that followed resulted in the founding banks taking a loss of ¥3.50 trillion, agricultural coops that had invested with them writing off ¥0.53 trillion, and other lenders losing ¥1.70 trillion. Milhaupt and Miller (2000) report that the government had intended the coops to bear a larger share of the losses, but they refused to contribute more than ¥0.53 trillion. Hence, to finalize the deal the government agreed to contribute ¥0.68 trillion (which would come from taxpayers).

The cabinet approved this plan on December 19 and the public and press condemnation was immediate and strident. The main Japanese financial newspaper, the Nihon Keizai Shimbun, penned a stinging editorial criticizing the non-transparent process that led to the deal and accusing the government caving into the Liberal Democratic Party (LDP) politicians known as the "agricultural policy tribe".

The deliberations in the Diet over the bill were especially contentious. The bill eventually passed in June 1996, 137 days after its introduction. In the interim there was three-week sit-in by opposition parties led by the New Frontier Party (NFP) that blocked the entrance to the Budget Committee room in the Diet and halted progress on the bill.[6] According to a poll in the Asahi Shimbun in March at the time of the sit-in, approval for the Prime Minster and cabinet had dropped by one-third from January and only 12 percent of the public backed the

[6] House of Councillors, the National Diet of Japan, "Dai 136 Kai Kokkai Gaikan (Overview of the 136th Diet Session" (http://www.sangiin.go.jp/japanese/gianjoho/old_gaiyo/136/m-136.html)

rescue.[7] Although the Jusen Bill eventually passed the Diet, the government felt compelled to ask the banks to contribute more to establish a fund that would be used to cover future additional losses from closing down the *jusen*. Given this background it is hardly surprising that there was little political appetite for telling the public that a much, much bigger bailout was needed.

A second factor in the delay was the concern by some inside the government that transparency about the size of the problems could trigger a panic. For example, Masayoshi Nishimura, who was the Director of the Banking Bureau of the MOF from 1994 to 1996 and thus was in charge of financial supervision when the *jusen* problem reached its peak, lists the fear of triggering a panic as an important reason for delay in disclosing the amount of non-performing loans at Japanese banks during the 1990s.[8]

> When the stability of the financial system is in question, disclosure of information that would enhance the credibility in normal times instead would add to the anxiety about financial stability. (Nishimura, 1999, p.118. Our translation)

Finally, the MOF bureaucrats were worried about the reputation of the organization and its perceived culpability for banking problems. As Kamikawa (2005) argues, as the primary regulator of all the banks, the MOF stood to be blamed if they admitted that there had been supervisory failures. In addition, the MOF had traditionally been able to deal with failing banks without spending public funds by asking bigger and healthier banks to absorb them. It would have been a dramatic shift to eschew this so-called "convoy rescue" approach in favor of using public funds.[9]

The protracted nature of the problems also put the MOF in a difficult position. In the early 1990s, the successful convoy rescues in the past likely led the MOF to simply assume that the non-performing loan issue could be handled without direct taxpayer assistance. But as the decade progressed there were a series of scandals involving bank examiners at MOF. In the most notorious one, lower-level bank examiners were prosecuted for leaking the dates of on-site examinations to a bank in return for the bank's entertaining them with panty-less waitresses at a *shabu shabu* restaurant.[10] In addition, many former MOF officials had leadership positions at the *jusen*. As the *jusen* scandal gained attention, the MOF was criticized for tolerating reckless lending.

Hence, by the peak of the banking crisis, the MOF was on the defensive as calls were being made to break up the ministry. Ultimately, in July 1998 the examination function of the

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[7] See http://articles.chicagotribune.com/1996-03-14/news/9603140138_1_jusen-prime-minister-ryutaro-hashimoto-protest retrieved June 26, 2013.

[8] Nishimura (1999, p.119) also claims that another concern on asking banks to clean up their balance sheets was the possibility of massive credit crunch.

[9] Hoshi (2002) discusses how the convoy rescues worked and how it changed over time.

[10] As Tett (2003) describes, extravagant entertainment of bureaucrats and politicians by Japanese businesses had existed before the 1990s, but the public became much more aware of these practices (especially regarding MOF staff participation) during these "scandals". See Tett (2003, Chapter 4) and Mikuni and Murphy (2002, pp.199-201).

MOF was removed from the ministry and assigned to a new agency (Financial Supervisory Agency). The MOF's influence over the Bank of Japan was also trimmed. Up until April 1998, the Bank of Japan had been tightly controlled by the MOF and by convention every other governor appointed to the bank was an ex-MOF official. In April 1998, the BOJ was granted legal independence. Although the scandals and the decline of political power of the MOF were not the only factors that led to the creation of the FSA and independence of the BOJ, they certainly played a role.

Even after the supervisory function was moved to the FSA, the MOF initially retained the power to formulate banking policy, which included decisions over whether and how to recapitalize banks. Eventually this power was also stripped. The first step was in July 2000, when the policy formulation function was also moved to the FSA and the Financial Supervisory Agency was renamed the Financial Services Agency (conveniently still referred to as the FSA). Then in January 2001, the FSA was merged with Financial Reconstruction Commission (which had been created to implement the injection of public capital into banks starting in March 1999), and the FSA gained the full power to force banks to write off non-performing loans and recapitalize. In the fall of 2002, Mr. Takenaka utilized this power to start serious recapitalization of major banks that was described above.

Kume (2005) raises another possible reason for the reluctance to force the banks to clean up their balance sheet in the 1990s. He argues the MOF deliberately allowed the banks to rebuild their capital gradually in the early 1990s because of the assumption that expansionary fiscal and monetary policies would help the banks accumulate profits. Thus, according to Kume's hypothesis, the lack of banking reform was also related to the regulator's judgment that Japan's growth problem was primarily cyclical and could be cured by demand stimulus. Hence the two critical policy decisions we have identified may be connected.

3.2 Lack of structural reforms

Given the weak state of the economy, there was a strong temptation for the various political parties to try to protect their favored constituents from fully facing all the associated risks of a stagnant economy. This was probably the most important reason why the structural reforms, which usually leads to more economic restructuring and job losses, did not proceed rapidly in Japan. The tendency for the weak economy to slow down structural reform would not be unique to Japan, especially if the policy makers believed (as we have shown above) that the weak state of the economy would not last long.

But the nature of the protection in Japan is especially relevant because most came in the form of market distorting regulation. For instance, instead of providing unemployment benefits and/or job training for unemployed, Japanese government often encouraged firms to not to fire workers (at least male regular employees). Under the practice of lifetime employment system, it was already hard for the firms to lay off workers. On top of that, firms were given subsidies to

maintain the employment.[11] The banks were also allowed to carry non-performing loans on their books without demanding borrowers restructure anything about their businesses. The government sometimes used public work projects to support employment. Advancing structural reform would have dismantled many of these protections. Arguably they could have been replaced with more efficient forms of support, but doing so would have likely changed the distribution of which groups were more exposed to economic risks.

So it is important to understand the political factors underlying the politicians' decisions on whether and how to change the ways various groups would be protected from major economic risks. Recent research in political economy focuses on political institutions that shape the incentives of individual politicians and influences policy outcomes. Estéves-Abe (2008) studies how Japan came to have the system of social protection that is fragmented (with different mechanisms applying to different groups delivering different levels of protection) and relies less on direct government protection and more on "functional equivalents" that disguise direct government spending. An important outcome of this approach is that entire industries or occupational groups are often shielded from market forces. The most important factor in her model, which she calls a "structural logic model," is the electoral system and the nature of political competition that the system creates.

> To put it briefly, the structural logic model claims that the Japanese electoral system (multimember districts and single nontransferable vote) produced strong incentives in favor of highly targeted forms of social protection at specific constituent groups or areas. Japan thus spent less on comprehensive social welfare programs, because such programs made it difficult to steer distributive benefits to specific areas and groups. Instead, Japan developed social insurance schemes and functional equivalents to social security programs that allowed occupational and geographical targeting. (Estéves-Abe, 2008, Introduction)

In a multimember district, more than one candidate wins seats in the parliament. Thus, a candidate does not have to appeal to a large number of unorganized voters to secure the victory. Relying on the support from a small but well organized group is often sufficient. This makes the strategy to support a fragmented system of social protection attractive. Moreover, the Liberal Democratic Party (LDP) in Japan was politically dominant for most of the post-war era and the LDP almost always placed multiple candidates in a single district to capture more than one seat. This meant LDP politicians needed to compete among themselves, which gave rise to more personal based voting rather than policy based voting, amplifying the importance of having support from well organized groups.

Lynch (2006) also examines social protection provided by government though with a different focus and different countries in a series of case studies. She focuses on "age

[11] The subsidy, which is (ironically) called Subsidy for Employment Adjustment, is given to firms that avoid redundancies by implementing other measures such as furloughs, dispatching workers to related companies (*shukko*), or offering internal job training. The policy was originally introduced in 1975 and continues to today.

orientation" of social policies, which is measured by how much the government spends to protect the elderly relative to the government spending for working-age adults and children. Lynch (2006) finds that the countries with elderly oriented social policies have an "occupationalist" structure of welfare programs, where different programs cover different occupations and the coverage for people outside the occupational groups is scant. The countries with citizenship-based welfare programs, which provide social protection for citizens at large, are more youth-oriented. She traces the differences to different experiences during the two historical periods: when these countries introduced the social welfare programs in the late nineteenth to early twentieth centuries, and when some countries shifted from the occupationalist systems to the citizenship-based systems right after World War II. The countries that started out with the citizenship-based systems stayed citizenship-based and tended to have an orientation that favor the young.

More interestingly, she argues that the different choices observed among the occupationalist systems depended on the nature of political competition. The countries where political competition focuses on providing benefits to favored constituencies (often called clientelism or particularism) stuck with the occupationalist systems, which provides more convenient ways for politicians to allocate more resources to their core support groups.

Thus, Lynch's discussion also features the nature of political competition as the most important determinant of the social protection policy. In terms of age-orientation, Japan is classified as one of the most elderly-oriented ones among the countries she studies. Consistent with Lynch's hypothesis, the nature of political competition in Japan is described as particularistic: politicians catered to their core support groups in order to win under MMD (multi-member districts) and SNTV (single non-transferable vote) system.

Though MMD/SNTV system characterized Japan's electoral system for a long time, the electoral reform of 1993 has changed the system. Japan's electoral system since the reform is characterized as a mixed system of SMD (single-member districts) and PR (proportional representation). Thus, the explanations based on political institutions would imply policy decisions in Japan must have started to change after the electoral reform. Indeed Rosenbluth and Thies (2001) claim that they find such an expected change in the resolution of *jusen*:

> We credit, at least in part, the new electoral rules for a policy shift away from the bank-coddling practices of the past. After trying to stick taxpayers with the tax for cleaning up the *jusen* mess, the LDP did not get away with it. (Rosenbluth and Thies, 2001, p.35)

Our assessment of the *jusen* resolution is different from theirs. The final resolution of the *jusen*, which relied mostly on (reasonable) contributions from the banks with minimum burden on agricultural coops and taxpayers, was in line with the traditional logic of convoy rescues. The new electoral system did not change the policy of the MOF drastically and the government continued to delay bank restructuring and significant recapitalization until late 2002.

But Rosenbluth and Thies (2001) are correct in pointing out the new electoral system made it difficult for the government to impose unpopular policies on voters. Estévez-Abe (2008, Chapter 2) explains that SMD means that even a government with parliamentary majority will be reluctant to impose unpopular policies because the "identifiability" and "accountability" of the ruling party is high. In this case, the voters can easily see the ruling party is clearly responsible for legislating the unpopular policies (high identifiability) and the voters can easily express the displeasure by voting for the most promising opposition candidate in an SMD (high accountability). Thus, the introduction of the SMD system in Japan may have ironically made it difficult to implement the economic reforms that require (at least temporary) increases in tax burdens, such as bank recapitalization using public funds and introducing a universal safety net for unemployed workers instead of subsidizing inefficient firms to maintain employment. If Japan had to choose its social protection policy from scratch under the SMD, a system different from the fragmented one might be chosen, but SMD seems to increase the cost of changing the existing system.

Another unpopular policy that the Japanese government has had trouble introducing is the taxpayer identification numbers (TIN). The TIN has been unpopular not only among the groups who benefit from the government's inability to verify their income, such as farmers and the self-employed, but also because of privacy concerns by other groups whose income are already reported to the tax authority accurately by their employers. The lack of TIN reduces taxability and makes it difficult to implement a universal system to replace the fragmented system of social protection.

There are two groups that are especially protected under the current system in Japan and hence have much to lose from many economic reforms: farmers and the elderly. As Lynch (2006) shows, Japanese social policies are very elderly oriented. As Hoshi and Kashyap (2012) point out, Japan's agricultural sector is heavily subsidized: in recent years, a widely used measure of the total amount of subsidies that farmers receive (Producer Subsidy Equivalent; PSE) have been roughly equal to the value added of the agricultural sector.

Both groups have been important supporters of the LDP. Although the number of farmers shrunk over time as Japan industrialized, they continued to have disproportionate political power because the allocation of seats to electoral districts did not adjust automatically as people moved from rural to urban areas. This caused the over-representation in rural electoral constituencies that have relatively more farm votes. The malapportionment in Japanese elections also favored the elderly because the proportion of the elderly is also high in rural areas.

Occasional redistricting reduced the malapportionment over time. For example, in the 1985 lower house election, the number of voters per seat in the most densely populated constituency was 5.12 times of that in the least densely populated constituency. The redistricting that added 8 seats to most populous districts and subtracted 7 from least populous districts

lowering the ratio to 2.92 in the 1986 lower election. After another redistricting in 1993, the ratio declined to 2.14 in the 1994 election. (George Mulgan, 2000, pp.330-331, Table 5.6).

Malapportionment still remains and is being contested in the courts. For the most recent lower house election in December 2012, the number of voters per seat was less than 50% of that in the most densely populated constituency in 72 out of 300 single member districts. Sixteen cases were litigated as being in violation of the constitution, and the High Courts ruled that the election was unconstitutional in all of the sixteen cases. These cases are now being appealed to the Supreme Court.[12]

It seems that the political impediments to reform are slowly eroding. But it also seems safe to say that some important aspects of both the protections that were left in place after the crisis and other broad deregulations that have been delayed can be traced to the specific political incentives that were in place in the late 1990s and early 2000s.

4. Similarities to the US and Europe

Looking at both the policy choices and the precipitating factors for the choices it seems that there is an asymmetry between the relevance of the Japanese experience for the U.S. and Europe.

4.1 Banking Issues in Europe

There is an eerie similarity between the policy choices made in the main euro area countries and those made in Japan.

Regarding banking recapitalization, we argued that Japan dissembled in confronting its banking problems because of public outrage that made addressing them unpopular, fear from the consequences of being transparent about the resources needed to address the problems, and concerns that the regulators (and politicians) would be held accountable for the weak conditions of the banks. To varying degrees all these considerations seem present in Europe.

As starting point, note that the banks in Europe are still weakly capitalized. Table 1 shows that the euro area was slow to force banks to raise more capital. Importantly the IMF analysis underlying the Table 1 estimates were completed before the first major problems were fully apparent in Greece. So the so-called doom loop between the health of peripheral euro area banks and soundness of the sovereigns had not begun.

Column A of Table 3 shows data collected by Nomura securities on the capital raised in the four main European countries by the largest banks from the middle of 2007 through the end of 2010. The individual results for the banks included in each country's total are also shown.

[12] "Dec. vote invalid; cases go to top court" *The Nikkei Weekly* April 1, 2013. http://e.nikkei.com/e/ac/20130401/TNW/Nni20130401FP6VOTES.htm?NS-query=electoral%20vote.

These banks were picked because they were the ones included in the major stress tests conducted by the regulators in Europe and the U.S. The figure shows that capital raising by these European banks through 2010 amounted to just under 74 billion euros. Though the universe of the banks in Table 3 and Table 1 are very different, the capital needs estimated in Table 1 suggest that this amount is a small number.[13]

By May 2010 the problems in Greece became apparent and the European crisis changed character. Column B in Table 3 shows the amounts of capital raised starting in 2011 through the end of September 2013.[14] Remarkably even though the risks facing the European banks rose substantially from 2010 onwards, capital raising slowed measurably, as these large banks raised only 45 billion euros during this period. As indicated in column B, several large banks, including the largest French bank and the largest Spanish bank raised no additional equity after 2011.

Most discussions of capital adequacy since the crisis have focused on the stress tests conducted first by the Federal Reserve in 2009 (as part of its Supervisory Capital Assessment Program) and then repeated subsequently on several occasions by the European Banking Authority. Virtually all European banks were judged to have enough capital to survive the stress scenarios considered in these tests. Unfortunately these tests are often more of an accounting exercise than truly forward looking solvency tests. Loosely speaking, these stress test calculations start from an initial level of bank capital and then subtract losses and add provisions and profits under a stress scenario over a certain interval to arrive at an ending capital number. If this terminal capital number is high enough then the bank passes the stress test.

This approach ignores other considerations that come into play if we want to judge solvency or viability of organization. The obvious omissions include losses beyond the stress test horizon, potential losses that do not need to be recognized in the accounting statements (such as those relating to securities that are listed as being held-to-maturity), and funding risks that can wipe out a bank quickly. In addition, in some cases the stress scenario may be too optimistic. So there is no contradiction if market indicators suggest a bank is distressed while a stress test shows that a bank has sufficient capital.

The remaining columns of Table 3 show some of the measures that fuel our skepticism about the condition of the European banks. To put the capital increases in perspective, columns C and D show data on total interest earning assets of the banks, while columns E and F show the risk weighted numbers. Regulatory capital requirements compare capital measure to risk-weighted assets and as the table shows the risk-weighting massively shrinks the asset number by which the banks are judged. A huge amount of the difference between interest earning assets

[13] One critical consideration is that the largest U.K. banks during the same period raised more than 100 billion pounds. So the Table 1 figures on capital raised in Europe are heavily influenced by the mandated recapitalization that was taking place in the U.K.

[14] See the sources that are listed at the bottom of the table for a full description of where the different data were obtained.

and risk-weighted assets arises because most sovereign debts issued by OECD countries carry a zero risk weight. So most of the large European banks operate with leverage ratios (total assets divided by common equity) in excess of 30.

Column G for the European banks shows estimates from Deutsche Bank Research of impaired loans. These estimates start from stated impaired loans and then add loans that are 90 days past due and restructured loans to arrive at an estimate of what Deutsche Bank considers to be a proper measure of impaired loans. In three out of the four countries, the total capital raised after the crisis is much less than a third of the level of impaired loans. The exception is Germany, where (at least for these two banks) more capital was raised than the level of the impaired loans.

Columns (H) and (I) in the table show the prices of five year credit default swaps on May 1, 2010 right before the first Greek rescue package and as of the end of September 2013. A credit default swap pays the owner of the swap whatever is required to make the owner whole following a default event. So the prices can be inverted to infer an annual probability of default. For instance, assuming a 60 percent recovery rate in the event of a bankruptcy, a CDS price of 200 implies a 4.4 percent (risk neural) annual probability of failing. It is remarkable that only one of the Spanish, French and Italian banks had a lower CDS price in September 2013 than in May 2010. This makes the lack of capital raising since 2011 all the more surprising.

The last column of Table 3 offers another indicator of the market view of the health of the banks. This column shows the ratio of the market value of equity (as of year-end 2012) relative to the book value. Every major European has a ratio below 1, with all the Italian and two the three French banks having ratios of ½ or less. Thus, market participants do not believe that these banks are adequately capitalized.

Though not shown in the table, the same kind of debate as in Japan about the legitimacy of counting deferred tax assets as capital has surfaced in Italy and Spain.[15] For prudential purposes, one important reason for requiring banks to use equity financing is to have some loss absorbing buffer that protects taxpayers from having to bail out troubled banks. Deferred tax assets are credits for past losses that can be applied against future taxes. If a bank will truly be profitable in the future, then the bank can deduct the past losses from the taxable profits and add the tax saving to its capital base. In this case, deferred tax assets turn into capital that can be used as buffer for unexpected future losses. If bank profits fail to materialize, however, the exemption from future taxes is irrelevant. Thus, the deferred tax assets do not serve as a buffer because they disappear exactly when such loss absorbing buffer is called upon. Spanish banks currently have about 50 billion euros of deferred tax assets that are counted as capital, but they (properly) would not count as core capital under the so-called Basel III banking rules. In 2011, Italian banks successfully convinced their government to convert deferred tax assets into outright

[15] "Health Check," *The Economist*, October 5, 2013.

tax credits, which can count as capital even under Basel III. The lesson from Japan is that these kinds of rescues do not inspire confidence.

There are three common explanations for persistent problems with the capitalization of the euro area banks. First, there has never been a public backstop made available for banks that fail to attract private funding. At the time of the 2009 U.S. stress tests some interpreted the key to their success as having eliminated asymmetric information about asset quality. But another interpretation was that the mandated capital raise combined with the public backstop was the critical ingredient. The fact that the European banks revealed more balance sheet information than the U.S. banks but have still not convinced the market of their health suggests that the latter lesson is the right one to draw.

The absence of a backstop in turn relates to several other factors. Perhaps the most important consideration is the reluctance of the Germany and other relatively strong countries to be forced into a bailout of banks in weaker countries. But prescriptions of austerity have not been popular, either. Thus, the governments in France, Spain, and Italy that were in charge during the start of the crisis were voted out. Remarkably Mrs. Merkel's party gained popularity in the most recent election. Until a recapitalization occurs, and we see the extent to which state funds are committed, it is hard to say whether the kind of concern over public backlash, as we saw in Japan, has prevented the backstop from being offered. Put differently, it is too early to tell whether the current policies advocated by Germany purely reflect self-interest or represent the honest view about the best way to proceed.

Nonetheless, the European authorities do appear to be hesitant to admit the size of the problems facing the banks. One reason is likely their fear of triggering a panic – given the absence of a backstop to support any large troubled institution. This has led to several embarrassing situations, such as exempting potential losses on sovereign bonds from the calculations in the 2010 stress tests and certifying that some weak banks such as the major Cypriot banks as having passed stress tests, only to see them subsequently require bailouts. So the concern we saw in Japan about rattling fragile markets seems to be alive and well in Europe.

A third reason why the European stress tests have not been more powerful is that the mandated capital increases have all been stated in terms of achieving a particular capital ratio. Hence, shrinking assets has been one way for banks to comply with the results of test. 14 of the 17 European banks reported in Table 3 reduced their risk-weighted assets during 2011 and 2012. The amount of interest earning assets also fell for 5 of them, but 8 banks *increased* the interest earning assets.

The consequence of these choices is that the banks in many European countries, most importantly Spain and Italy, remain reluctant to expand their lending to the private sector. This keeps credit tight and shows up as the unusually high spreads between lending rates and the rate at which funds can be borrowed from the ECB.

The financial system in Europe is dominated by banks, so banking conditions are the most important indicator of credit availability in Italy, Spain, France and Germany. But indices of financial conditions that look at a broad range of financial variables such as interest rates, stock and property prices, bond prices tell a similar story. For example, the financial conditions index proposed by Angelopoulou, Balfoussia and Gibson (2013) suggests that credit conditions in the euro area even after 2009 have been quite restrictive. Their analysis also suggests that conditions in Germany are different than in the peripheral countries.

The reluctance of banks to lend is reinforced by the mechanics of the way that ECB structured its lender of last resort policies. The ECB allowed banks to participate in repurchase agreements with it. A repo loan has two elements: the haircut which specifies the discount on the collateral that is pledged, and an interest rate on the loan amount. As Drechsler, Drechsel, Marques, and Schnabl (2013) document, the ECB chose to offer lower haircuts on peripheral sovereign bonds than were being offered in the market. The ECB offset this subsidy by charging a higher interest rate than prevailing market rates. For example, as Drechsler et al note, as late as the end of 2011, the ECB haircut on Greek sovereign debt was only 10% while private haircuts were much higher.

This structure of the facility creates a perverse incentive. For any bank which has solvency doubts, buying sovereign bonds becomes an attract way to gamble for reclamation. This temptation arises because if the spreads on sovereign yields widen substantially then the bank will suffer large losses. But in that scenario of this sort, a weak bank is unlikely to survive anyway. Conversely, if there is no sovereign crisis, so that sovereign spreads narrow the bank makes a capital gain.

Drechsler et al document that exactly the sort of gambling took place with the ECB borrowing between August 2007 through December 2011 (when their data ends). Specifically, the most thinly capitalized banks in Europe loaded up Greek, Irish, Italian, Portuguese and Spanish bonds and then posted them as collateral with the ECB. This can explain the pattern in Table 3 whereby the banks' interest earning assets grew, but their risk-weighted assets shrunk. Hence these banks were able to shift downside risk from a sovereign crisis to the ECB. While this mechanism is very different than the zombie lending problems that plagued Japan, it is similar in that the banks are gambling for reclamation and this behavior is facilitated by the official sector.

It is not obvious that undercapitalization of the European banks is an important factor in the poor growth that was documented in Figure 2. But there are several indicators that support this interpretation. First, there has been pervasive private sector commentary about deleveraging and the risks that creates for the economy. A good example of this kind of analysis is Barclays Capital Research (2011). They write "The EU Summit endorsed work done by the EBA setting a 30 June 2012 deadline for banks to reach a 9% Core Tier 1 ratio, after incorporating a mark-to-market exercise on their holdings of sovereign debt, resulting in a €106bn capital deficit. This

significantly increases the risk of the bank sector deleveraging."

The Barclays report then undertakes a provocative exercise to show how powerful this effect could be. Specifically, they assess how much banks in each country would have to shrink to eliminate the capital deficit. This calculation requires only two steps. First, the capital shortfall is translated into a required change in risk-weighted assets. They assume that the 9% capital ratio will be a binding constraint. Hence each euro of capital supports 11.111 euros of risk weighted assets. Then they suppose that risked weighted assets are 40% of total assets. So that when risk-weighted assets shrink by one euro, total assets shrink by 2.5 euros. The resulting calculations are shown in Table 4.

While these are obviously upper-bounds on the importance of this channel and the loan demand by households and businesses probably also shrunk, the Table 4 numbers are still shockingly large. For Cyprus, Greece and Portugal the implied adjustments are huge. But the Spanish and Italian ones are also large, so that even if only some of the actual adjustment was to come from shrinking assets the implied credit contraction would be important.

A more direct indicator of the consequences for the real economy is available from the European Central Bank's "The Euro Area Bank Lending Survey." This quarterly questionnaire asks major banks to comment on various aspects of lending conditions. There are two questions that seem especially helpful for our purposes. One simply asks the banks whether "Over the past three months, how have your bank's credit standards as applied to the approval of loans or credit lines to enterprises changed?" The banks then are allowed five potential answers: tightened considerably, tightened somewhat, remained basically unchanged, eased somewhat, eased considerably." A second question asks about the role of "your bank's ability to access market financing (e.g. money or bond market financing, incl. true-sale securitization)" in contributing to the change in lending conditions. Again the banks have a five point scale to respond on ranging from "contributed significantly to tightening" to "contributed significantly to easing".

The responses by the Spanish and Italian banks to these two questions are graphed in two panels of figure 10. The individual responses are coded with values of 1.0, 0.5, 0. -0.5 and -1.0 and the graphs here show the sum of the scores across all banks for each quarter. We draw three main conclusions from the figure. First, for Spain lending standards were consistently tightening between mid- 2007 and mid-2010. Second, lending standards also became tighter in Italy beginning in 2008 and still continuing, albeit with a bit of a pause in 2009, into 2013. Third, in both countries access to market funding was at times a critical contributor to the tightening. In Italy, this factor was very important in late 2011 and early 2012, while in Spain this consideration was most relevant in 2007.

Overall we conclude that there are many similarities between the post-crisis banking situations in Europe and Japan. In both cases the banks remained undercapitalized well after the acute phase of their crises. This occurred in part because of the authorities' reluctance to admit

the size of the problem and because of policies that allowed the banks to avoid sanctions and to gamble for reclamation. While this was happening, the banks were not lending in ways that would support a recovery.

The one caveat to this conclusion is that the conditions in Germany have been somewhat different. It is true that the German banks have chosen to reduce their assets rather than aggressively recapitalize. Also lending conditions were tightened in 2008 and 2009. But lending standards have eased since then and broader credit conditions in Germany also have improved. CDS prices also have fallen for Deutsche Bank so that it is now viewed as the least risky bank in the Table 3 sample (though its price to book ratio was still well below 1).

4.2 Banking Issues in the U.S.

The banking problems that emerged in the U.S. were handled differently than in Japan and Europe and hence appear to have been less relevant for understanding tepid economic recovery in the U.S. Table 3 shows four important differences between the European and U.S. conditions.

First, the U.S. banks were much more aggressively recapitalized. In total the U.S. banks listed in Table 3 raised about twice as much equity (taking account of the exchange rate differences) as the European ones prior to 2010. About half of what U.S. banks raised came in the wake of 2009 Supervisory Capital Assessment Program (SCAP).

While the SCAP was also an accounting exercise rather than a solvency assessment, it differed in two important ways compared to subsequent European tests. First, the SCAP stated the capital shortages in billions of dollars, rather than as a percentage of bank assets (or risk weighted assets). This meant that the banks could not shed assets or rearrange the composition of assets to comply with the mandate.

Second, the U.S. also set up contingency plan for public capital injection in the form of preferred shares if a bank could not obtain private funding. The terms of the government backstop called for a 9% dividend, effectively extracting a penalty rate for any banks that relied on this method of funding.

Once the results were announced in May 2009 the banks aggressively issued equity and ultimately no banks accessed the government backstop. Prices of credit default swaps for the banks in the U.S. declined in the 90 days after the announcement date compared to before (Greenlaw et al., 2011). The trough of the U.S. stock market also was around the time of the announcement of the stress tests. Interestingly, the trough in Japanese share prices came in May 2003 when it became clear that Minister Takenaka made it clear that he was determined to confront the banking problems (Hoshi and Kashyap, 2010). As the data in Table 1 indicates, one could still argue that the U.S. banks needed more capital, but the initial recapitalization is likely to have marked a turning point in the U.S. crisis.

A second big difference between banking conditions in the U.S. and Europe is the scope of non-performing loan problems. The U.S. data on impaired loans in Table 3 pertain to only reported non-performing loans (because they come from a different source than the European ones). But definitional difference hardly accounts for big gap between U.S. and European estimates. The U.S. banks have already reduced the non-performing loans to low levels.

The relative health is also evident in the low levels of the CDS prices of the U.S. banks relative to the European ones. Ratios of the market price of equity relative to book prices tell a similar story. The U.S. banks look much stronger than their European counterparts. If the stock prices were extended to through September 2013, the gap would be even larger with more U.S. banks having price to book ratios that are close to or above 1.

A fourth difference is that U.S. banks have been growing their loans to the private sector. Most of the individual banks had higher interest earning assets at the end of 2012 than in 2010. Figure 11 shows data on the answers to three survey questions asked by Federal Reserve as part of its Senior Loan Officer Opinion Survey. The first panel of the figure shows that since 2009 lending conditions have been eased steadily. The second panel shows that since 2010 somewhere between 40 and 60 percent of the banks each quarter had indicated that lending spreads have shrunk relative to the banks' cost of funds. The last panel shows the banks have judged loan demand to be improving since about mid-2010.

One difficulty with both the Fed and ECB surveys is that for most purposes, the absolute level of the willingness to extend credit matters much more than how that willingness has changed. In July 2012 the Fed also asked the banks about the *level* of lending standards. Specifically, for seven different types of loans, the bankers were asked how the current lending standards compare to conditions since 2005. For non-syndicated commercial industrial loans by domestic banks, about half of the respondents gauged lending conditions to be at about the historical norm. The remaining banks were about equally split between saying conditions were tighter or looser than usual. Interestingly, when the Fed first asked these questions in July 2011, conditions judged to be somewhat tighter, especially by smaller banks and for loans to smaller borrowers. For instance, more than half of the smaller banks in 2011 reported lending standards were tighter than the post-2005 average. These answers accord the frequent anecdotal reports and other indicators that large U.S. firms have not much trouble obtaining credit.

Finally, it is important to recognize that capital market financing in the U.S. is much more important for businesses than in Europe. According to data from the Securities Industry and Financial Markets Association (SIFMA), corporate bond issuance for both investment grade bonds and high yield bonds in 2012 broke all-time records, with investment grade issuance topping $1 trillion for the first time and junk bond issuance topping $300 billion.[16] The SIFMA data indicate that through August 2013, junk bond issuance is again on a record setting pace and

[16] These data are available at http://www.sifma.org/research/statistics.aspx and the figures referenced above were accessed on October 7, 2013.

investment grade issuance is on track to again exceed $1 trillion. So for all these reasons, U.S. banks do not seem to be importantly holding back an economic recovery.

4.3 Structural Problems in Europe

Many of the euro area countries also face some of the same structural impediments to growth as we saw in Japan. Notorious labor market protections that make it hard to fire workers are common. There are also important regulatory biases that favor incumbent firms and make it hard to start new businesses. In some of the countries the underground economy saps tax revenue and has led to highly inefficient tax systems.

Despite these problems being long recognized, with the exception of Germany as described below, limited progress was made towards addressing these issues in Spain, Italy and France before the financial crisis. These three countries, therefore, now face the difficult task of pushing structural reforms in a recessionary economy.

This is exactly the problem Japan faced. The crisis and economic downturn in Japan made structural reforms even more difficult than usual because some politically influential groups that already benefitted from the existing system requested additional protection. Instead of tackling the structural impediments to growth, the Japanese government often concentrated on fiscal stimulus to prop up the economy in the short-run, hoping that growth would return and problems could be handled then.

The structural problems in Europe were widely recognized before the global financial crisis. For example, the IMF's staff reports for the annual Article IV consultations that were conducted in 2003 identified a number of major structural programs and called on the countries to remedy them.

The report for Italy (International Monetary Fund, 2003d) points out "(w)hile low growth in 2002-03 clearly reflected also cyclical factors, there was broad consensus that structural weaknesses had played a key role in Italy's growth malaise over the past decade" (p.7), and goes on to argue:

> A *high tax burden* …, and particularly a *high tax wedge on labor*, stifled incentives to work and invest, while the incomplete fiscal consolidation process raised concerns about the future tax burden. …… *Labor market distortions* remained important, especially in the South, partly reflecting insufficient regional wage differentiation. …… *Insufficient competition in product markets* remained significant, raising costs for firms that use inputs from these sectors ……. (International Monetary Fund, 2003d, pp.8-9)

The report for France (International Monetary Fund, 2003b) sounds more positive, pointing out "the shift in policies toward tempering the rise in labor costs and promoting private sector employment" (p.3) and "(p)roduct market functioning was being improved gradually through a variety of initiatives" (p.20), but argues more reforms are necessary.

> In the labor market, attention should be paid to the cost effectiveness of policies ……. Consideration should be given to restoring the phasing-out of unemployment benefits and introducing experience-rating for employers' unemployment contributions. Product market functioning stands to be improved by the initiatives to reduce the administrative and regulatory burden and the strengthening of governance of state participations." (International Monetary Fund, 2003b, p.25)

The report also suggests the "functioning of credit markets should be improved" (p.25).

The report for Spain (International Monetary Fund, 2004) echoes the same themes: existence of structural problems, some progress in structural reform, and the necessity to do more.

> A series of structural reforms have appreciably improved the workings of labor and product markets. Political and institutional constraints have however stood in the way of two long-advocated measures: reform of the wage-setting system to secure greater wage differentiation, and of the land supply and zoning process to improve its responsiveness and transparency. In addition, growing regional responsibilities in several areas have limited the central government's reach, inter alia complicating the implementation of competition policy ……. (International Monetary Fund, 2004, p.6)

Interestingly, the report for Germany (International Monetary Fund, 2003c) differs from those for France, Italy, and Spain because the Schröder government on March 14, 2003 had announced its "Agenda 2010" reform package. The first sentence of the concluding statement of IMF mission to Germany that year was "the added emphasis on structural reforms in the government's policy strategy is entirely right." In the eventual article IV report, the Fund staff wrote:

> Failure to address structural rigidities has contributed to more than a decade of underperformance of Germany's economy. …… the proposed measures underlying the new strategy – notably cutbacks in benefits for the jobless, reductions in tax expenditures and subsidies, reforms to health care and pensions, and advancing tax relief – provide the right ingredients to revive growth, strengthen longer-term economic performance and put public finances on a more sustainable footing. (International Monetary Fund, 2003c, p.35)

The Agenda 2010 included (i) labor market reform to make it more flexible, (ii) Labor Office reorganization to make it more efficient, (iii) health care reform to reduce non-wage labor costs, (iv) reduction of support for the long-term unemployed by merging their unemployment benefits with welfare benefits, (v) tax cut financed by slashing government subsidies and privatizing government assets, (vi) local business tax reform to improve local public finance, (vii) elimination of entry barriers in the form of master craftsmen law for many jobs, and (viii)

pension reform.[17] According to Freier (2008, p. 29):

> The chancellor justified his radical reform policy with the need to make Germany's social market economy sustainable: "The alternative is obvious: Either we modernize our social market economy or we will be modernized by the untamed powers of the markets, which displace the social [dimension]" (Schröder 2003, also SPD 2003, p.6)

Although the reform faced enormous political resistance as expected, the government pushed through the reform.

The conditions as of 2003 were important because a number of euro area countries were running deficits that were larger than the levels permitted under the Stability and Growth Pact (SGP) that the euro area member states had agreed upon. The SGP mandated that euro area member countries pledge to maintain deficits below 3 percent of GDP and to manage public finances to keep debt below 60% of GDP. Upon identification of an excessive deficit a country would be given a year to come back in line unless a sharp recession (with growth of less than -2 percent) was underway. The excessive deficit provisions that were a supplement to the SGP held that countries in violations of these targets which did not take corrective action would be subject to fines levied by the European Commission.

In 2002, both Portugal and Germany had broached the 3% deficit limit. Portugal soon took strong corrective measures, but Germany did not. And in early 2003, France received an early warning that it was also on path to exceed the limit. This led the European Commission to begin the process of assessing penalties for the excessive deficits for Germany and France. Both countries pledged to reorient budget policies to reduce their deficits in 2003. By November 2003 it was clear that deficits would again exceed 3% in both countries and hence the Commission moved again. The Commission deviated from the precise process mandated through SGP, and offered both countries an extra year to come into compliance but made recommendations to the Economic and Financial Affairs Council of the European Union **(**ECOFIN, the finance ministers of the European Union countries) to require improvements or face sanctions.

In order to levy the penalties, a super majority of the ECOFIN was needed to adopt the recommendation of the Commission. France, Germany, Italy and UK formed a blocking minority against the recommendation, voting instead to "hold in abeyance the penalties." So although a majority of the countries favored the Commission's position, it failed to pass.

Part of the motivation for Germany's reluctance to accept the fines was a desire to undertake fiscal stimulus to soften the blow of the Agenda 2010 reforms. The IMF even recognized that there was a case for doing so. But the combination of Germany and France flaunting the budget limits set a horrible precedent for fiscal discipline. Hence when Greece was discovered in 2004 to have been submitting unreliable fiscal accounts, the scope for

[17] "A Quick Guide To 'Agenda 2010'," *Deutsche Welle*, October 17, 2003.

punishing them was much more limited than would have otherwise been the case. In hindsight, with the benefit of multiple audits, Greece is now recognized to have exceeded the 3% deficit threshold in every year since 1998.

Ultimately, Germany did follow through on its Agenda 2010 reforms, but the efforts in Spain, Italy, and especially France were much less successful. This is confirmed by looking at measures of labor market protection published by OECD. Figure 12 shows the value of OECD employment protection index for France, Germany, Italy, and Spain for 1998, 2003, 2008, and 2013. Panel A shows the index based on the procedure and cost for dismissing individual or a group of regular workers. According to this measure, the degree of employment protection of regular workers hardly changed in the last fifteen years, with a possible exception of Spain, where we notice a recent decline. For Germany, the protection of regular workers against dismissals actually increased over time even after the implementation of the Agenda 2010 reform.

The effect of the German reform is observed in Panel B of the figure, which shows the OECD employment protection index for temporary workers. Here the cost of dismissing temporary workers for Germany started at a lower level than the other countries and declined further. In Italy and France, the value of the index did not changed from 2003 to 2013.

The contrast between Germany and the other three European countries shows up most clearly in the evolution of unit labor costs after 2003. Figure 13 shows the unit labor costs calculated by OECD for France, Germany, Italy, and Spain from 2003 to 2012. The 2003 level is normalized to be 100 in this figure. Importantly, between 2003 and 2007 unit labor costs for Germany declined, while they were increasing in the other three core countries. The gap that emerged during this time has not closed after the crisis and given the differences in borrowing costs discussed above, this has created important competitiveness problems for the other countries.

The latest IMF article IV consultations also support our assessment of the importance of incomplete reforms in France, Italy and Spain. For instance, the 2013 French report (International Monetary Fund, 2013a) argues that:

> The overarching objective of structural policies should be to close the gap between the cost of labor and productivity and to increase activation of underused labor resources. The preferred outcome would be to raise productivity and reduce the non-wage cost of hiring and doing business by removing rigidities in the labor market and obstacles to competition in product markets. To the extent that the wage-productivity gap is too large to be closed by acting on these levers, however, an adjustment in wages may be necessary. There is also scope to generate growth by increasing incentives to seek employment and remain in the labor force. (International Monetary Fund 2013a, page 27).

In January 2103 France announced some first steps to try to address these issues. The main tangible sign so far is an agreement by many unions to move towards a system that the IMF summarizes as trading off "more flexibility in adjusting working conditions at the enterprise level for enhanced security and training opportunities for employees." But the government has not settled on a strategy for product market reform.

The Spanish article IV 2013 report contains very similar suggestions. Specifically:

> Despite reforms, labor market rigidities continue to force the adjustment onto employment. The reform needs to go further: increasing firms' internal flexibility, reducing duality, and enhancing employment opportunities for the unemployed. A social agreement could bring forward the employment gains from structural reforms. (International Monetary Fund, 2013a, page 1).

Finally, the Italian article IV 2013 report also harps on these same themes. In particular, the Fund's opening assessment of the situation in Italy is:

> The euro area crisis hit Italy hard, but the origins of Italy's low growth pre-date the crisis and stem from its stagnant productivity, difficult business environment, and an over-leveraged public sector. In the absence of deeper structural reforms, medium-term growth is projected to remain low. (International Monetary Fund 2013c, page 1).

The IMF staff note that Italy ranks 30th out of the 31 OECD countries in the World Bank's Ease of Doing Business survey and suggest numerous reforms. Among the many recommendations are calls to simplify standard wage contracts, decentralize wage setting to tie wages more to firm-level conditions than to national conditions, and to reduce the labor tax wedge.

To summarize, France, Italy and Spain face a very difficult set of challenges. They continue to need major structural reforms, most of which had been identified well before the crisis, to improve their medium term growth prospects. But, their debt levels have risen substantially since 2003 and in the wake of the financial crisis growth has been low and deficits have been large. So implementing these reforms now is more difficult than when Germany did it and the room to use fiscal stimulus to soften the blow of any displacements is limited, too.

As if this was not bad enough, the public frustration with the crisis and recession has weakened the political leaders in most European countries. So the ability of governments, especially in Italy and Spain, to commit and follow through with multi-year promises is questionable. In Japan, we noted that the political stability that came with Mr. Koizumi was an important turning point. Unfortunately as of this writing it looks like only Germany has a leader that has a sufficient mandate to implement difficult programs.

4.4 Structural Problems in the U.S.

Unlike Japan and many European countries, structural problems of the U.S. economy seem to have been less serious. Employment protection is low in the U.S. and the labor market shows high mobility. The regulatory advantage for incumbent firms is smaller than in Europe or Japan and starting new business is relatively easy.

Unlike the reports for Article IV consultation for European Countries in 2003, the one for the U.S. did not point out any structural impediments to economic growth. Although the U.S. economy had not fully recovered from the recession that had started in 2001, International Monetary Fund (2003a) declared "the longer-term growth potential of the U.S. economy remained strong." (p.9) The only type of structural problems identified related to public finance. The report raises concerns on sustainability of fiscal condition at both Federal and State levels and calls for structural reforms of Social Security System, Medicare and Medicaid. It also points out that rise in pension and health care costs depress profits for corporations. But, there is no mention of structural problems in labor and product markets that are found in the reports for European countries.

Another way to see that the growth challenge was less serious for the U.S. is to look at the changes in the trend growth rates. Figure 14 shows how the trend growth rate changed as the trend level of GDP per capita grew over time for the U.S., Japan, France, Germany, Italy, Spain, and the UK. We estimate the trend real GDP per capita by applying a Hodrick-Prescott filter with very large smoothing parameter (400). Then, we plot the rate of change of the trend at each year against the level of the trend for the year. The figure covers 40 years from 1971 to 2011.

The figure shows that the growth rate of an economy falls as it becomes larger. At the same time, the paths for the U.S. and the U.K. are very different from the paths taken by the other economies. Even when GDP per capita reached $30,000 and eventually $40,000, the U.S. and the U.K. seem to grow at rates higher than the other countries. Other economies, such as Italy and Japan, showed extremely high growth rate when their GDP per capita was low but drastically slowed down as they grew. Similar tendencies are observed for France and Spain. Germany is an interesting case. Until recently, Germany's path looked very similar to the other European countries and Japan, but Germany seems to have broken away and has been growing at a higher rate.

In the years leading up to the financial crisis, U.S. growth was fueled by a consumption boom that was coincident with rapid house price increases and rising debt levels. In a broad sense, the U.S. economy before the crisis was similar to the Japanese or Spanish economies. In Japan, the speculative investment boom in the late 1980s masked the structural problems that had already lowered the potential growth rate. Similarly, the housing boom allowed the Spanish economy to continue growing in the 2000s without drastic structural reforms. In both cases, the crisis revealed the importance of structural problems. The recovery from the crisis has been slow in the U.S. as well. But, if our contention that unmet structural reforms and banking problems are not responsible for sluggish U.S. growth, what is?

Bailey and Bosworth (2013) offer a clear and concise summary of the facts concerning the slow recovery of the U.S. economy. They point out that there are three noteworthy differences between this recovery and previous U.S. post-war recoveries. First, residential and nonresidential construction has been unusually weak. Second, state and local expenditure is depressed, whereas this has not been the case in past recessions. Third, businesses have not used retained earnings to finance as much business investment as usual. They also take issue with an earlier analysis by Stock and Watson (2012) that points to the slow growth of the labor force as a driving factor in the slow recovery.

We do not have a satisfactory account for all of these observations, but we find the following account promising. First, the U.S. was in fact growing above trend prior to the crisis. Figure 15 shows OECD estimates of the U.S. output gap as was estimated in 2008 and as of 2013. The OECD data suggest that the boom years in the middle of the decade were in fact unsustainable. Hence part of the reason why the recovery is underwhelming is because it is unrealistic to expect to return to the trend that appeared to be in place prior to the crisis. At this level, our story for the U.S. is similar to those for Japan and Spain: high growth leading up to the crisis was not sustainable.

However, the mechanism that made the pre-crisis growth fueled by the housing boom unsustainable in the U.S. was different. As Charles, Hurst and Notowidigdo (2013) point out, one consequence of the protracted construction boom in the first half of the last decade is that it (temporarily) created jobs for low-skilled workers. As Charles et al. note, these kinds of workers had found employment in manufacturing a long time ago, but manufacturing opportunities for low-skilled workers had been declining for many years: 1.8 million manufacturing jobs disappeared between 1980 and the late 1990s. Between 2000 and 2007, manufacturing jobs contracted by 3.5 million.

Charles et al. hypothesize that the housing boom masked the importance of the decline in manufacturing employment. They find evidence in favor of this hypothesis by looking across cities and comparing local manufacturing employment, construction employment and house price movements. They estimate that about one third of the increase in non-employment after the crisis, i.e. the drop in participation, reflects the unmasking of the secular decline in manufacturing.

Hence, we see that some of the labor force collapse that Stock and Watson (2012) focus upon is connected to the housing market boom and its crash. This observation also suggests that the sluggish post-crisis construction activity may have been inevitable. The above trend growth fueled by housing boom that increased the revenues for state and local governments may have led them to over-estimate the soundness of their financial positions, although it is hard to quantify.

The other factor that seems to have played a role in depressing activity in the U.S. is heightened uncertainty about economic policy. Baker, Bloom and Davis (2013) construct several indices of economic policy uncertainty. They report various pieces of evidence that "policy uncertainty rose to unusually high levels from the 2007-2009 recession onwards and they [the pieces of evidence] point to tax, spending, and regulatory policy as the main contributors." Baker et al find a strong statistical association between economic policy uncertainty and employment and investment outcomes. Their estimates on the magnitudes of these effects show that policy uncertainty is quantitatively important, though they note that establishing that this is a causal effect is very challenging. Thus, their research provides one potential explanation of why businesses might be holding on to cash and not investing.

We recognize that our story is incomplete and that the magnitudes associated with the various parts of it are uncertain. We do not deny that some of the weakness in consumption in the U.S. is related to the real estate market collapse and the desire for households to reduce their debts, either. This mechanism has probably been operative in Japan and some parts of Europe. But we introduce our account to suggest that there is a plausible description of the slow recovery in the U.S. that was not driven by the factors that were central to the narrative for Japan and Europe.

5. Conclusions

Fischer's (1987) case study of monetary policy experiences in the 1970s paints a picture of Japan as a success story. The Bank of Japan was more successful than other central banks in establishing its inflation fighting credibility:

> After a sharp change in money growth and a deep recession in 1974, the Bank of Japan succeeded in gradually reducing both money growth and inflation over the succeeding decade, with an interruption from the second oil shock. The short sharp shock worked for the Bank of Japan. But it did not work for the Bundesbank. After bringing down inflation in 1973-74, the Bundesbank faced generally rising inflation until the second oil shock and then was only able to reduce inflation by creating and maintaining high unemployment. Similarly, both the Fed and the Bank of England had to create massive recessions in the early eighties to get the inflation rate down, despite their successes at reducing inflation in the first oil shock. (Fischer 1987, p.38)

Two decades later we argue that Japan was again a trail blazer, but unfortunately in the opposite way. Faced with a huge financial crisis Japan had to navigate many challenges that other advanced economies had not confronted since the Great Depression. This time even though the Bank of Japan cut the policy interest rate all the way down to zero, it could not stop the deflation. Partially learning from Japan's episode, the Fed, the Bank of England, and later the ECB not only cut the interest rate more aggressively than the BOJ did initially but also expanded their balance sheets very quickly, and avoided deflation.

The focus of our case study is two policies that could have allowed Japan to recover faster from its banking crisis and restore growth: bank recapitalization and structural reforms. Unfortunately, France, Italy, and Spain seem to be following Japan's lead. They are in denial about the magnitude of the banking problem and the need to recapitalize their banks. Like Japan necessary structural reforms prior to the crisis were delayed and now these will have to be implemented in an environment that is both economically and politically more fragile. Germany looks somewhat better because some serious structural reforms started before the crisis. The U.S. looks better because the banks were forced to recapitalize relatively more quickly and the economy did not face the type of structural problems that Japan and Europe exhibited. But this hardly means that the U.S. economy is free from problems. Indeed, on an absolute scale the U.S. recovery has been tepid despite expansionary macroeconomic policies (at least in the traditional sense). This suggests that the U.S. economy also has problems, but they are just different from those in Japan and in Europe.

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Table 1. Capital Shortage of Banks after the Crisis

Unit: billions of dollars

	United States (ex-GSEs)	Euro Area	United Kingdom	Other Mature Europe[1]	Japan (March, 2001)
Total writedown (actual from end-2008: Q4 to end-2009:Q2, and forecasted from end-2009:Q2 to end-2010:Q4) (except for Japan)	1,030	820	400	200	96[2]
Total capital raised to end-2009:Q2 (except for Japan)	500	220	160	50	75[3]
Capital Needs to reach 4 percent Tangible Common Equity / Total Assets at end-2010:Q4 (except for Japan)	130	310	120	110	75[4]

Sources: International Monetary Fund (2009). *Global Financial Stability Report*. October 2009, Table 1.3 except for Japanese estimates which are described in the notes.

Notes:

1) Other Mature Europe includes Denmark, Iceland, Norway, Sweden, and Switzerland.

For Japan, the average exchange rate of March 2001 (121.5 yen per dollar) is used to convert the yen figures into dollars.

2) The total writedown for the Japanese banks is from April 1997 to March 2001, and the number was calculated from the table "Loss of Bad Loans Disposal of All Banks" in "The Status of Risk Management Loans held by All Banks in Japan (as of the end of March 2001)" (http://www.fsa.go.jp/news/newse/e20010802-1a.html) on the Financial Services Agency web site.

3) The change in the official core capital from March 1997 to March 2001 for Japanese banks.

4) Taken from Hoshi and Kashyap (2010), Table 1.

Table 2. Directly Growth Enhancing Reforms Suggested by the Koizumi Administration in 2001

Policy	Progress	Comments
Extend the maximum period for middle-aged and senior workers under the temporary employment system from 1 to 3 years; Deregulate employment agency system	Done, but with some exceptions	Boosts labor supply
Study use of optical fiber by the private sector for highway and river management; Facilitate laying of optical fibers for apartments	Done	Could improve capital accumulation and TFP. Fiber optic usage was increased.
Enhance financial support for entrepreneurs: Create 1,000 ventures from universities in 3 years; Stock option reform to improve access to finance by business ventures; Enhance Fair Trade Commission and strengthen Securities Exchange Surveillance Commission.	Partially done	Could have helped capital formation. Abe administration has similar plans.
Allow the private sector to establish care houses, and make use of PFI to enable facilities to be built by the public sector and operated by the private sector; Develop a variety of business models for private-sector-operated "Secure Homes" giving the elderly access to high-quality care services	Done	Makes more efficient use of capital and labor. But the Abe administration has continued to seek further reforms in this area.
Put 50,000 adults with occupational experience into the classroom in three years to boost education in subjects such as IT and English; Promote adult vocational education at technical colleges and universities; Study measures to boost scholarship schemes and assist self-help efforts by undergraduates and adult members of society; Introduce an IT literacy program to improve the general public's information literacy and raise the IT teaching skills of teachers	Partially achieved	Would boost human capital. Abe administration also seeks to boost IT skills.
Provide vocational training for middle-aged and senior white collar workers who left their previous jobs, and unemployed people; Create employment according to local needs	Done	Improves human capital. But Abe administration has essentially the same proposal.
Improve online job search service ("Job-net") and career counseling service; Create employment in service industries	Tried	Improves allocation of labor. The Abe administration is trying to expand the use of private agencies
Flesh out structural reform of rice cultivation based on a complete overhaul of the production and distribution system; Rationalize the production and distribution of vegetables and to respond to the revolution in consumption patterns; Study measures for stabilizing business incomes in the agriculture, forestry and fishery sectors; Work out details of structural reform in agriculture	Done	Improves TFP. The Abe administration has a number of proposals to increase and improve rice production.

Table 3: Selected Banking Indicators for Major French, German, Italian, Spanish and U.S. Banks

Country (banks)	(A) Capital Raised 7/2007 to 12/2010	(B) Capital Raised 1/2011 to 9/2013	(C) Interest Earning Assets 12/2010	(D) Interest Earning Assets 12/2012	(E) Risk Weighted Assets 12/2010	(F) Risk Weighted Assets 12/2012	(G) Impaired Loans	(H) CDS Price 5/1/2010	(I) CDS Price 9/30/2013	(J) Price/BookRatio 12/2012
France (€)	**20.6**	**1.3**	**2,294.7**	**2,344.5**	**1,307.8**	**1,169.2**	**86.6**			
BNP Paribas	4.3	0.8	781.0	774.1	601.3	552.0	43.2	97.18	126.10	0.70
Credit Agricole	5.9	0.0	1,028.3	1,046.6	371.7	293.1	18.7	135.00	157.50	0.40
Societe Generale	10.4	0.5	485.4	523.8	334.8	324.1	24.7	120.83	151.22	0.50
Germany (€)	**13.5**	**16.5**	**1,711.5**	**1,838.7**	**613.7**	**541.7**	**28.8**			
Commerzbank	1.1	13.5	717.7	596.9	267.5	208.1	19.2	103.66	160.84	0.30
Deutsche Bank	12.4	3.0	993.8	1,241.8	346.2	333.6	9.6	127.50	109.51	0.63
Italy (€)	**15.5**	**18.0**	**1,672.1**	**1,684.7**	**1,085.5**	**950.3**	**189.9**			
Banca Monte	6.1	2.5	184.2	172.1	109.2	92.8	40.2	118.52	605.00	0.40
Banco Popolare	1.0	2.0	112.6	115.6	94.9	55.1	20.4	151.51	517.76	0.30
Intesa Sanpaolo	0.3	5.0	535.2	548.1	332.2	298.6	28.4	102.98	284.69	0.40
UniCredit	7.0	7.5	724.5	734.0	454.9	427.1	88.3	118.02	308.98	0.30
Unione di Banche Italiane	1.1	1.0	115.6	114.9	94.3	76.6	12.6	119.75	260.00	0.30
Spain (€)	**24.4**	**9.0**	**2,373.7**	**2,637.4**	**1,441.1**	**1,351.5**	**165.5**			
Banco de Sabadell	0.7	2.0	88.5	153.3	60.5	75.3	10.3	290.00	315.00	0.66
Banco Popular Espanol	1.2	2.8	123.3	151.2	93.9	88.8	14.0	311.10	380.00	0.50
Banco Santander	14.2	0.0	1,120.1	1,168.1	604.9	557.0	41.0	145.30	224.56	0.80
Bankinter	0.5	0.6	51.4	56.1	31.0	25.4	2.0	263.77	270.00	0.55
BBVA	7.0	0.0	504.7	582.4	313.3	329.0	58.3	160.00	236.55	0.90
BFA Bankia	0.0	3.1	249.6	220.5	174.1	104.3	19.8	n.a.	395.00	-0.13*
La Caixa	0.8	0.6	236.1	306.0	163.3	171.6	20.2	190.00	185.00	0.51
Europe Total (€)	**74.0**	**44.7**	**8,052.0**	**8,505.3**	**4,448.0**	**4,012.7**	**470.8**			
U.S. ($)	**171.9**	**11.1**	**7,921.8**	**8,274.3**	**5,873.5**	**6,032.9**	**165.5**			
Bank of America	51.2	0.0	1,897.6	1,770.0	1,455.9	1,206.0	37.5	140.50	107.86	0.57
BB&T	2.7	0.0	135.3	153.4	126.2	136.4	2.7	32.92	n.a.	1.07
Capital One	2.5	6.3	175.7	255.1	127.1	223.5	2.5	111.40	88.04	0.83
Citigroup	39.7	0.3	1,753.6	1,676.3	977.6	971.3	38.3	170.62	101.75	0.64
Fifth Third Bank	2.1	1.9	98.9	101.6	100.6	109.7	3.0	280.08	n.a.	1.01
JPMorgan Chase	18.2	0.0	1,677.5	1,842.4	1,175.0	1,270.4	24.6	83.16	93.38	0.86
KeyCorp	2.7	0.6	78.4	71.8	77.9	79.7	0.8	426.37	n.a.	0.78
PNC Financial Services	4.4	0.0	224.7	248.6	216.3	260.8	4.6	63.01	68.00	0.87
Regions Financial Corporation	2.1	0.9	117.5	107.8	95.0	92.8	4.6	n.a.	n.a.	0.67
State Street Corporation	5.1	0.0	126.3	167.6	60.2	71.9	0.2	n.a.	n.a.	1.06
SunTrust Banks	1.9	1.1	147.2	153.5	132.8	134.5	4.0	211.15	n.a.	0.75
Bank of New York Mellon	2.1	0.0	172.8	250.5	101.3	111.2	0.3	n.a.	n.a.	0.85
US Bancorp	2.8	0.0	252.0	306.3	247.6	287.6	5.1	56.65	50.00	1.74
Wells Fargo	34.4	0.0	1,064.2	1,169.5	980.0	1,077.1	37.3	81.83	63.43	1.24

Sources: Data in columns A and B were supplied by Nomura Securities Equity Research. Data for Columns C, D, E and F of French, German, Italian and Spanish banks are based on *Running the Numbers: The Question Bank* published by Deutsche Bank on Sept 19, 2013; that report does not contain information for Deutsche Bank, Banco de Sabadell, Banco Popular Espanol, Bankinter, BFA Bankia and La Caixa, so those numbers are excerpted from or calculated based on their annual reports. The data in column G for the French, German, Italian and Spanish banks are based on *European Banks Strategy* published by Deutsche Bank on Sept 3, 2013; this report also does not cover Deustche Bank, Banco Santander, Banco de Sabadell, Banco Popular Espanol, Bankinter, BFA Bankia and La Caixa, so those data pertain to the non-performing loans numbers that are shown in their respective annual reports. Data for the U.S. institutions in columns C, D, E, F and G are all from SNL Financial database. Data in columns H and I for the French, German, Italian, Spanish and major U.S. banks (Bank of America, Capital One, Citigroup and JPMorgan Chase) are the mid quotes of 5-year CDS from Bloomberg; the remaining CDS quotes are from Markit.com. Column J data are from Bloomberg and *Running the Numbers: The Question Bank*.

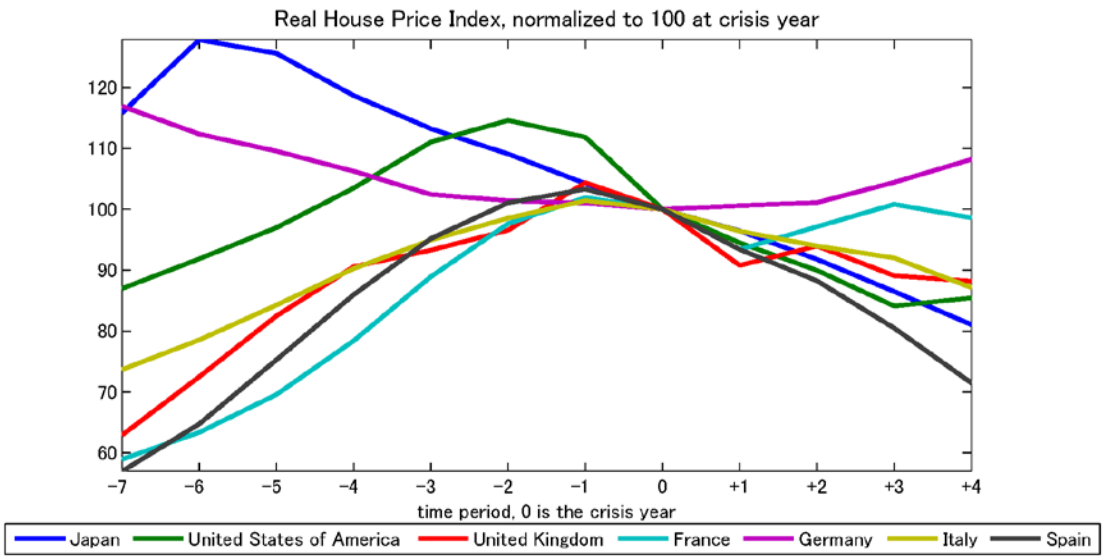
Note: * BFA Bankia received a government bailout and hence reported negative book equity.

Table 4. Barclay's 2011 Deleveraging Calculation

€m	EBA Capital Shortfall	Convert to RWAs @ 9% CT1 ratio	Convert to Assets @ 40% Avg Risk Weighting	Shrinkage	
				% GDP	% MFI Assets
Cyprus	3,587	39,856	99,639	571%	73%
Greece	30,000	333,333	833,333	362%	170%
Portugal	7,804	86,711	216,778	126%	38%
Spain	26,161	290,678	726,694	68%	20%
Belgium	4,143	46,033	115,083	33%	10%
Austria	2,938	32,644	81,611	29%	8%
Italy	14,771	164,122	410,306	26%	10%
Slovenia	297	3,300	8,250	23%	16%
France	8,844	98,267	245,667	13%	3%
Norway	1,312	14,578	36,444	11%	5%
Sweden	1,359	15,100	37,750	10%	3%
Germany	5,184	57,600	144,000	6%	2%
Denmark	47	522	1,306	1%	0%
Total	**106,447**	**1,182,744**	**2,956,861**	**33%**	**10%**

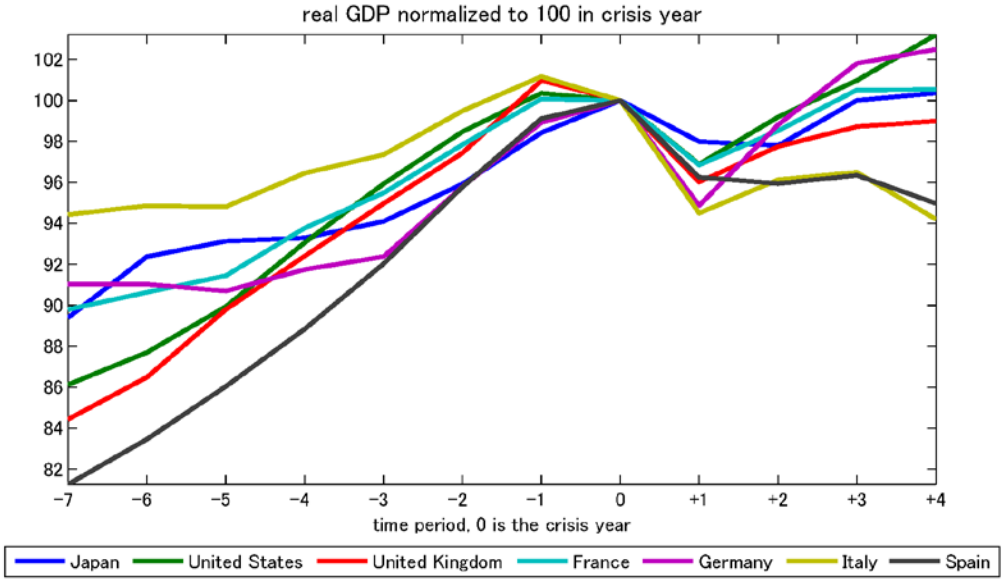
Source: EBA, Barclays Capital.

Figure 1. Real Estate Prices around the Crisis



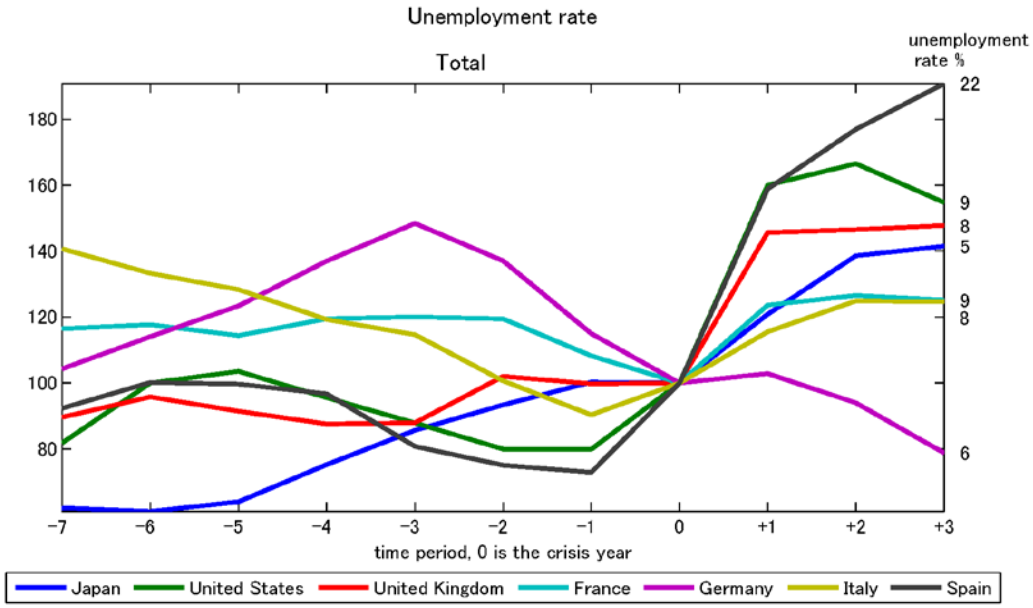
Source: OECD, Japan Real Estate Institute

Figure 2. Real GDP around the Crisis



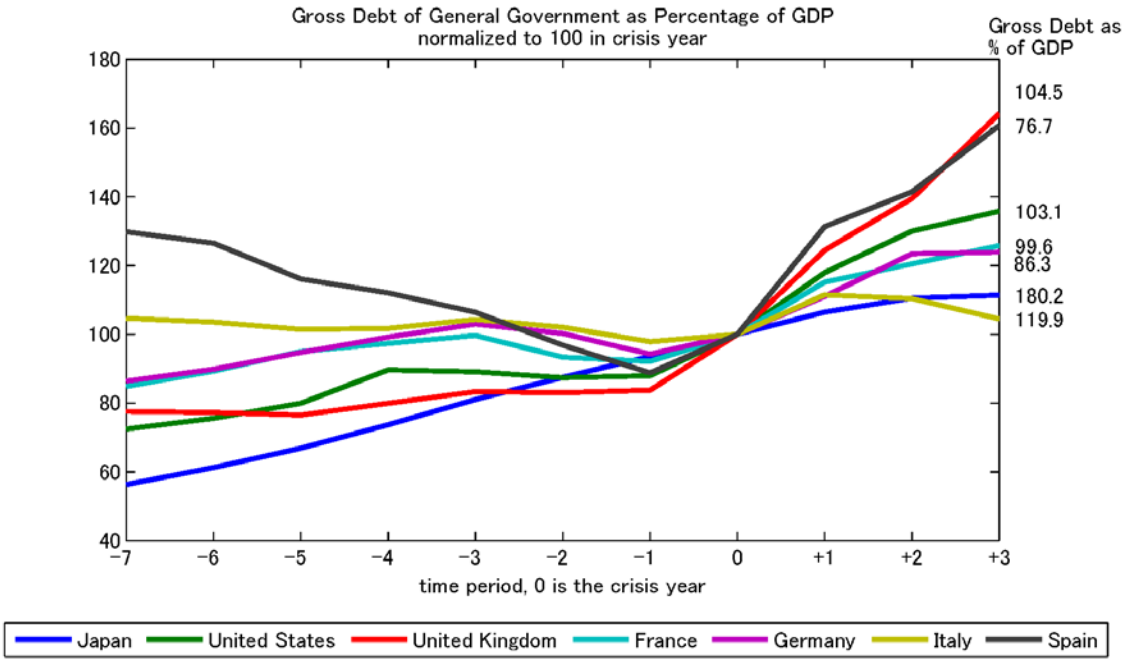
Source: OECD National Accounts. "GDP, national currency, constant prices, OECD base year, millions"

Figure 3. Unemployment Rate around the Crisis



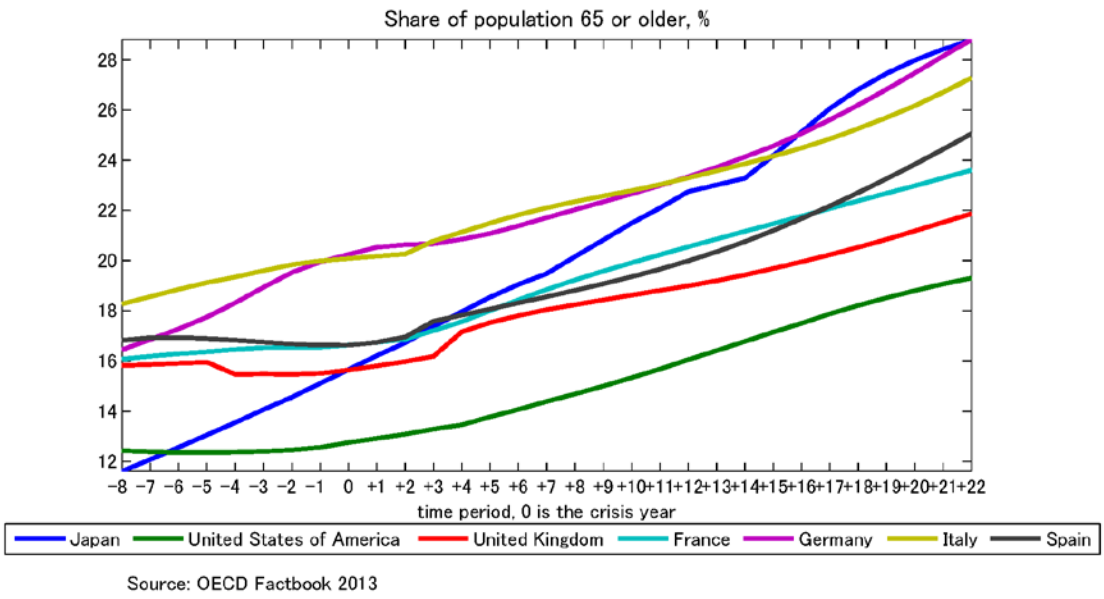
Source: OECD Statistics LFS

Figure 4. Gross Government Debt to GDP Ratio around the Crisis



Source: OECD National Account. Financial Dashboard, Stock Indicator.

Figure 5. Aging Trend around the Crisis



Source: OECD Factbook 2013

Figure 6. Government Growth Forecasts

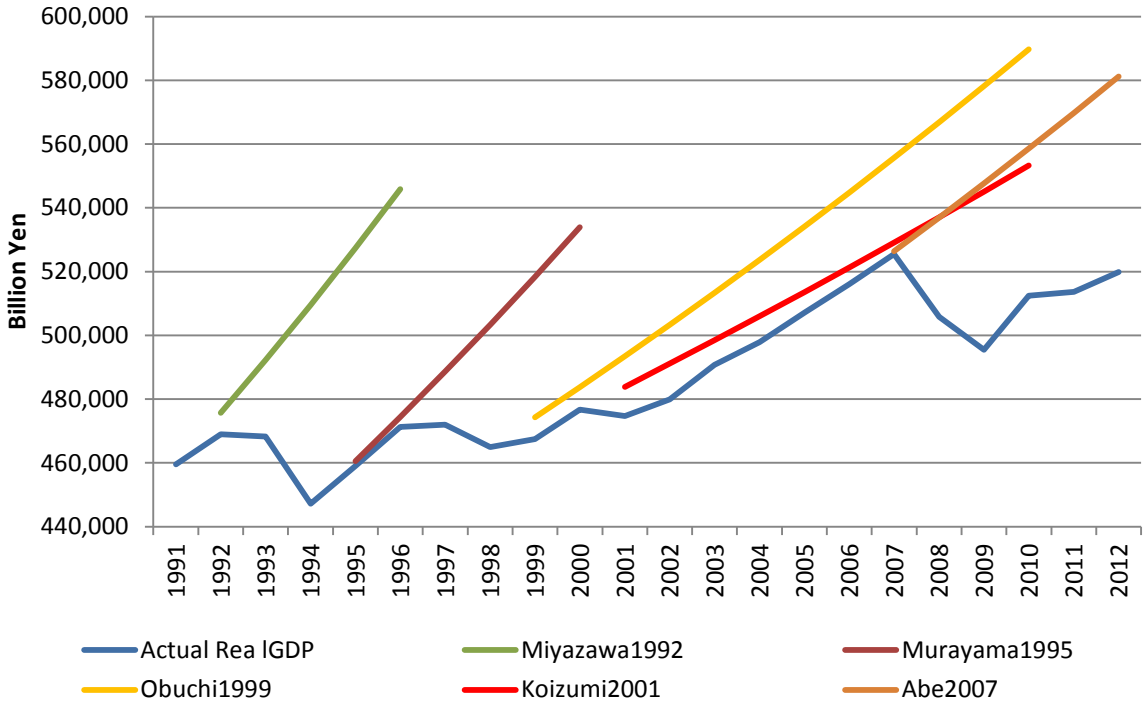


Figure 7. OECD Estimates of Japan's Output Gap as of Different Dates

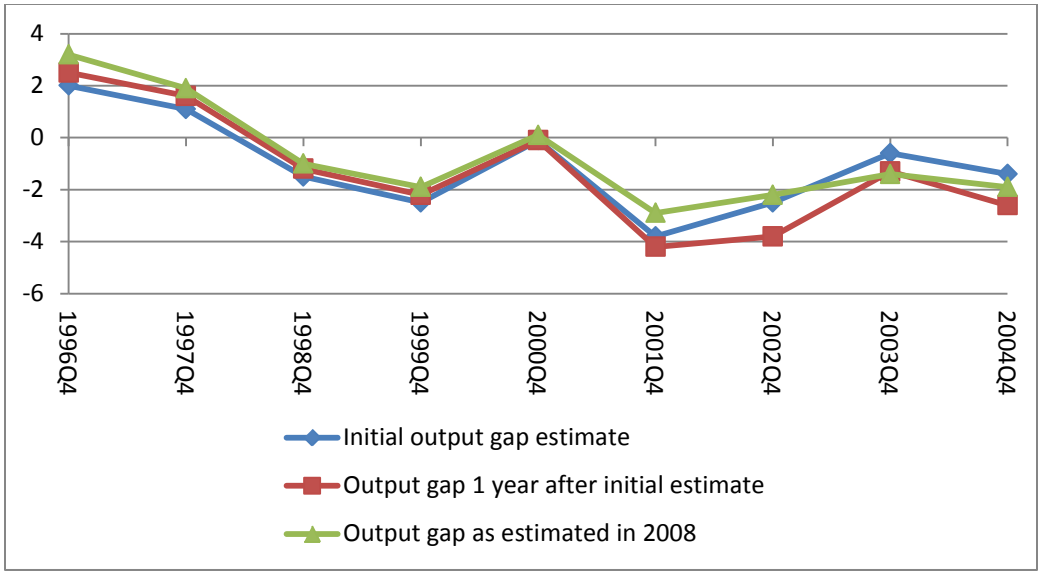


Figure 8. Public Investment Share and Marginal Productivity

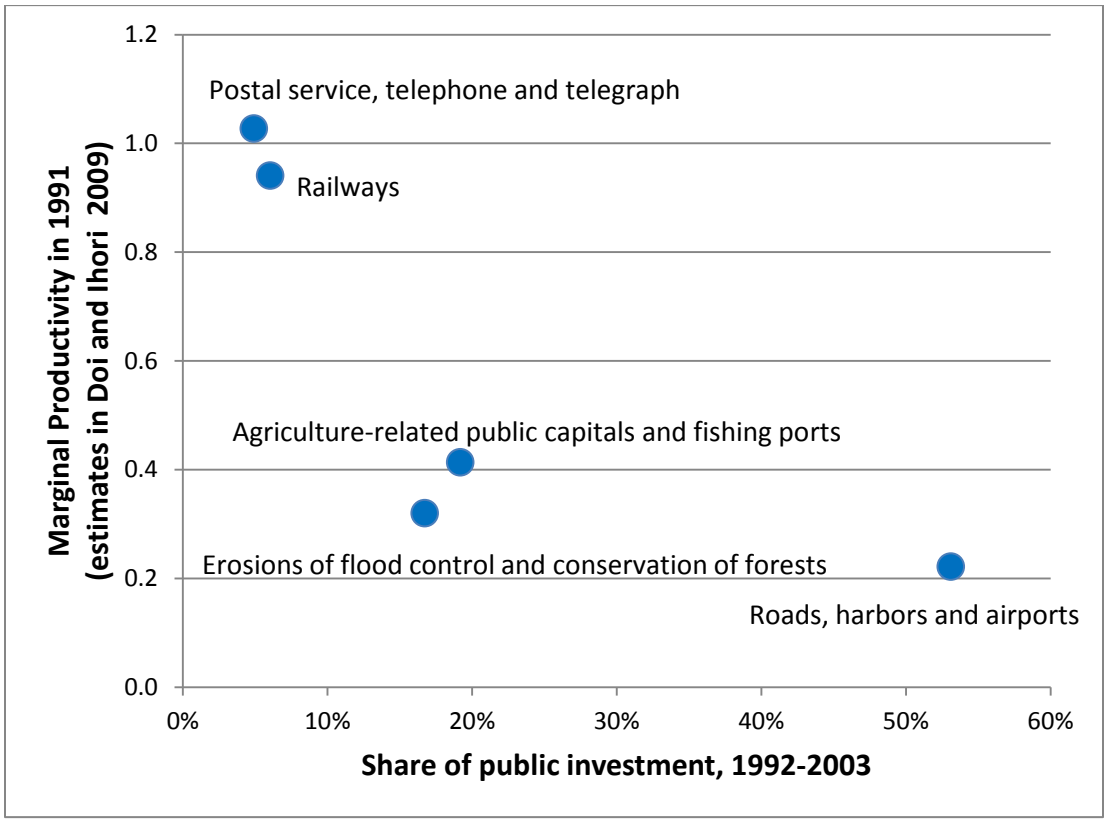


Figure 9. Government Expenditure and Private Investment (ratios to GDP)

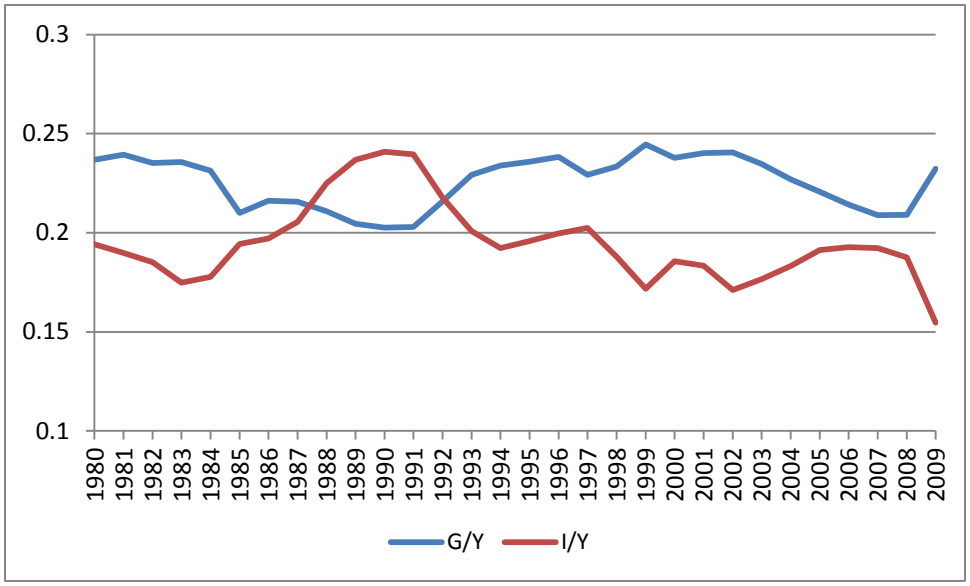
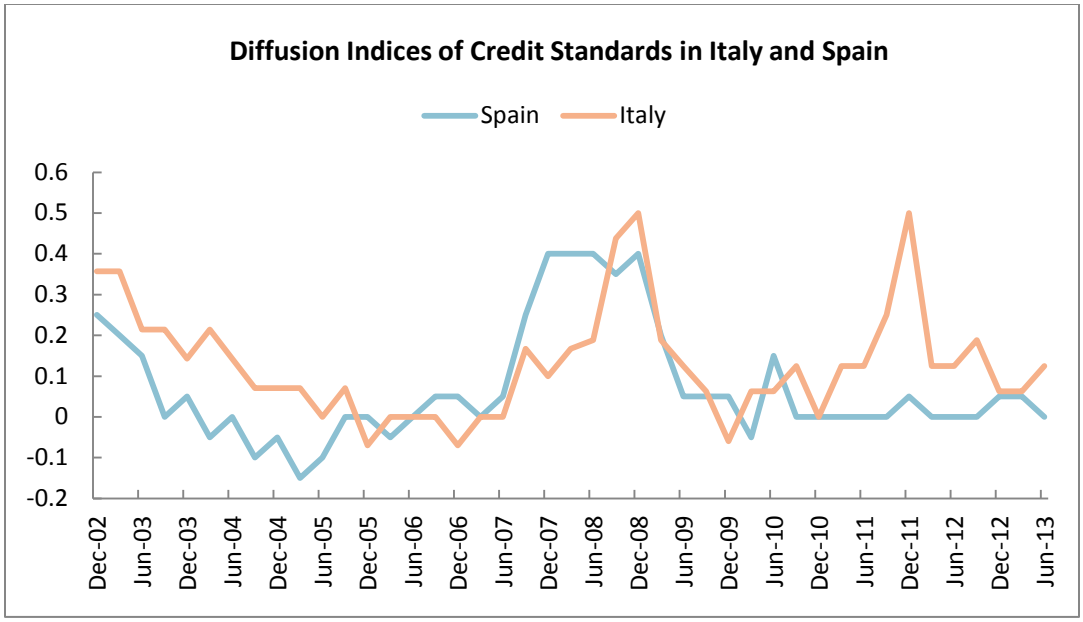


Figure 10. Access to Funding in Italy and Spain



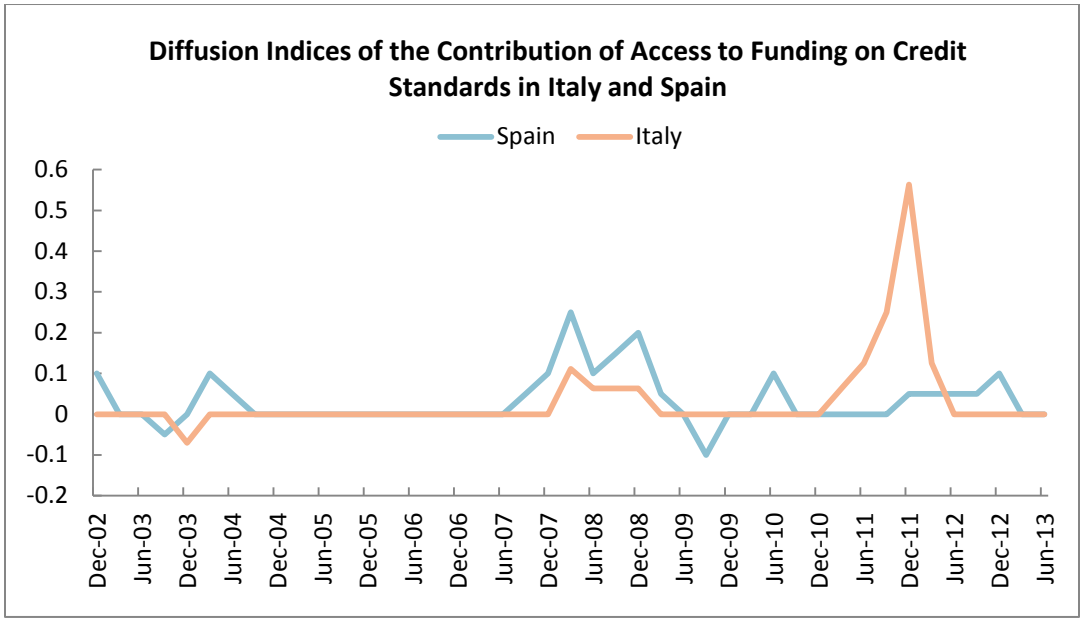
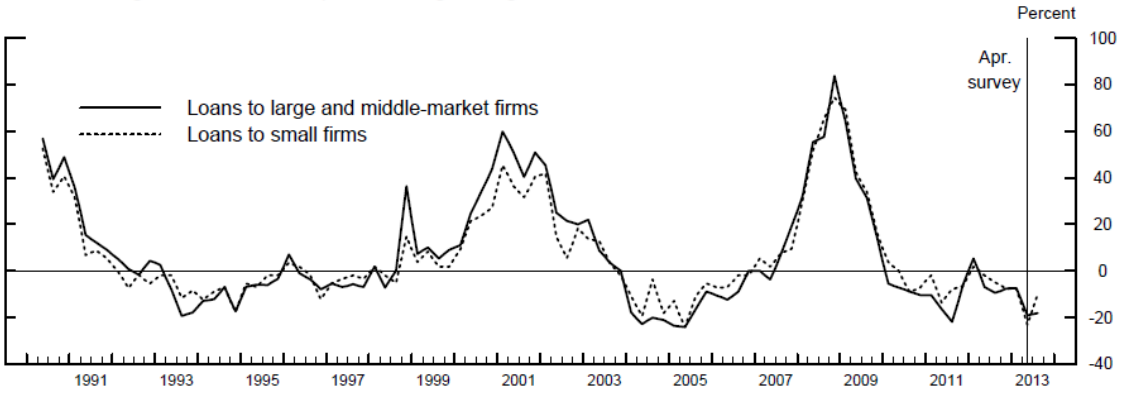


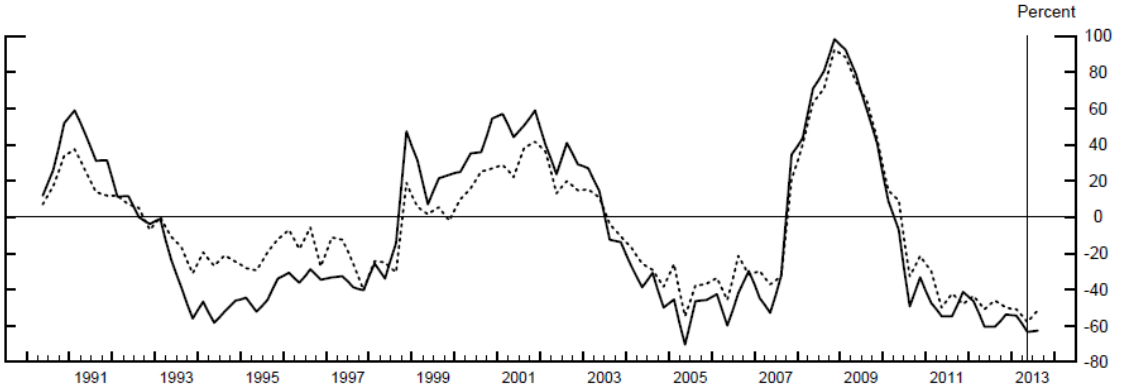
Figure 11.

Measures of Supply and Demand for Commercial and Industrial Loans, by Size of Firm Seeking Loan

Net Percentage of Domestic Respondents Tightening Standards for Commercial and Industrial Loans



Net Percentage of Domestic Respondents Increasing Spreads of Loan Rates over Bank's Cost of Funds



Net Percentage of Domestic Respondents Reporting Stronger Demand for Commercial and Industrial Loans

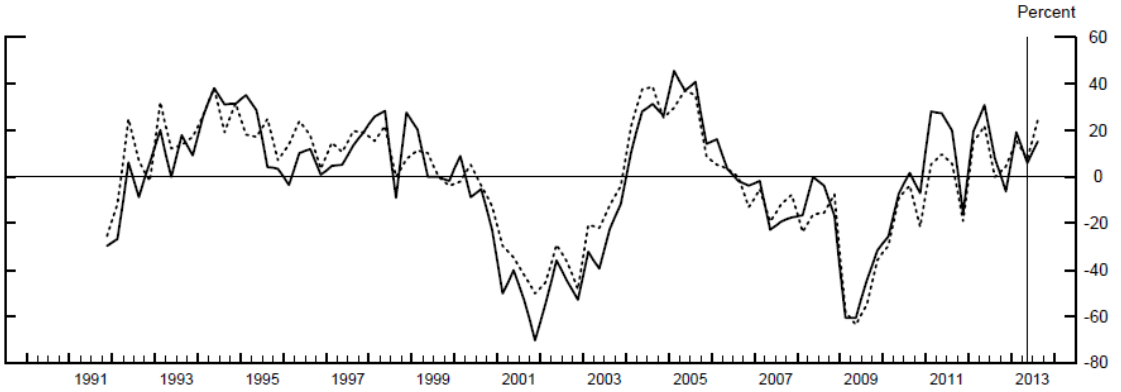
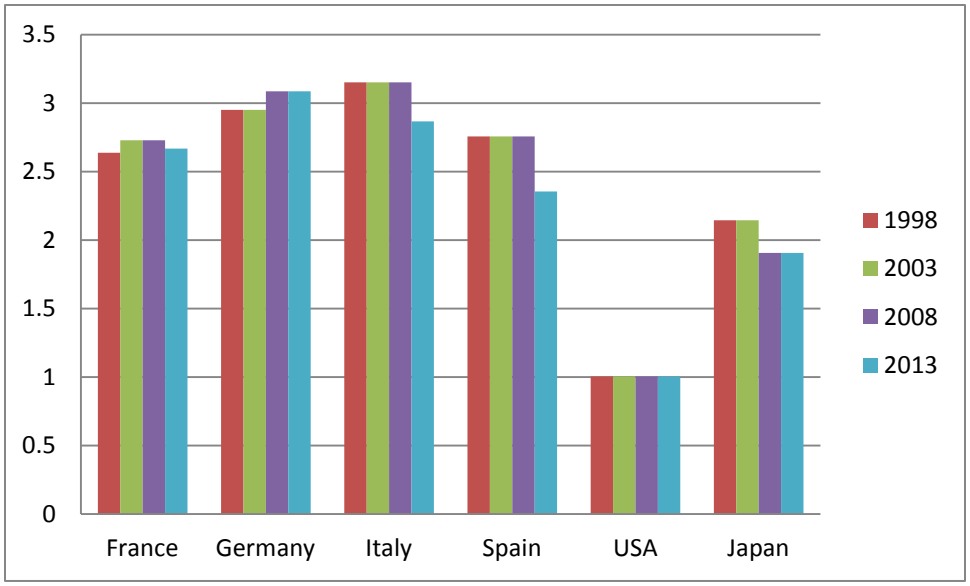


Figure 12. OECD Employment Protection Indices

Panel A: Regular Workers



Panel B: Temporary Workers

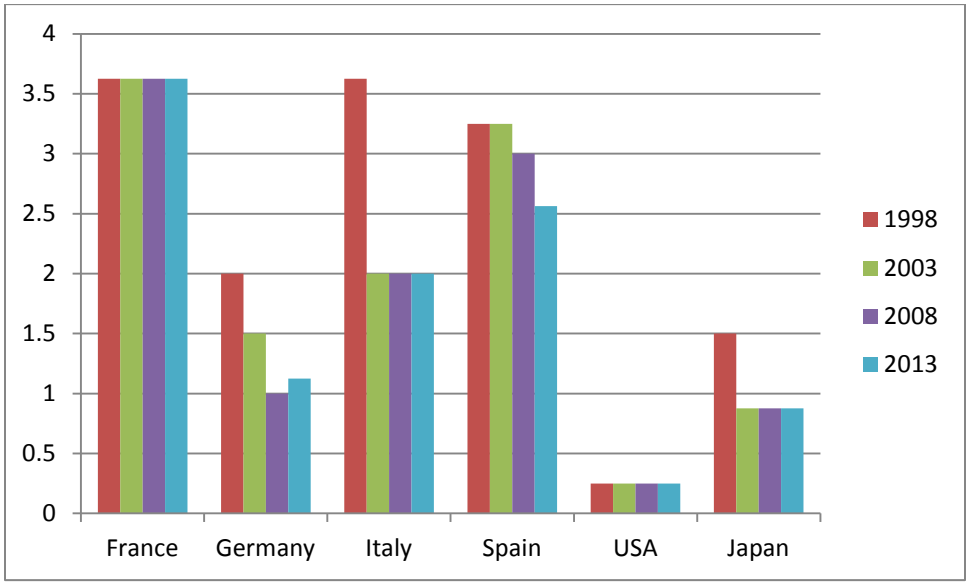


Figure 13. Unit Labor Costs for France, Germany, Italy and Spain

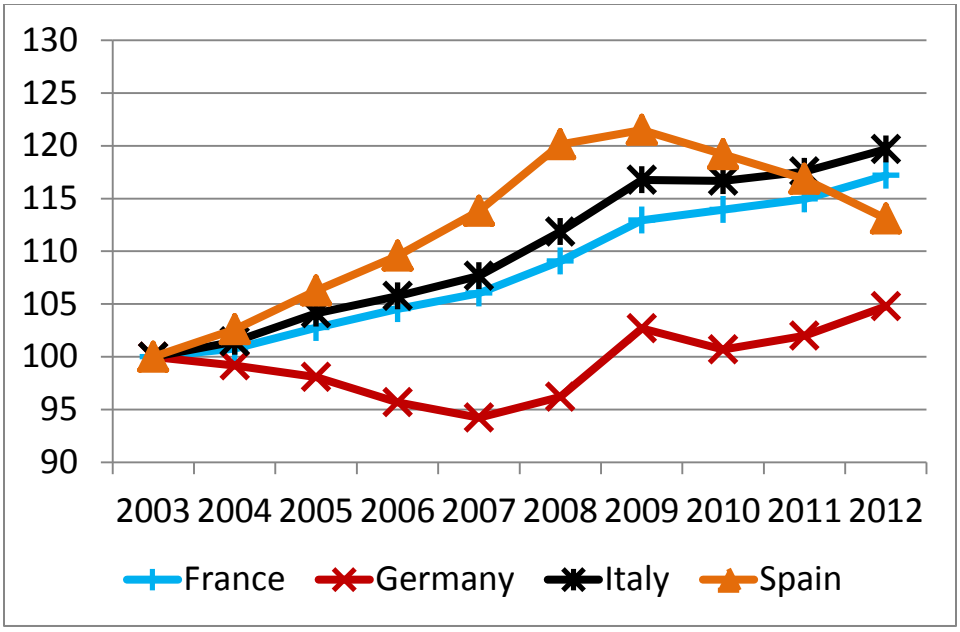


Figure 14. Trend GDP per capita, 1971-2011 (USD, PPP adjusted.)

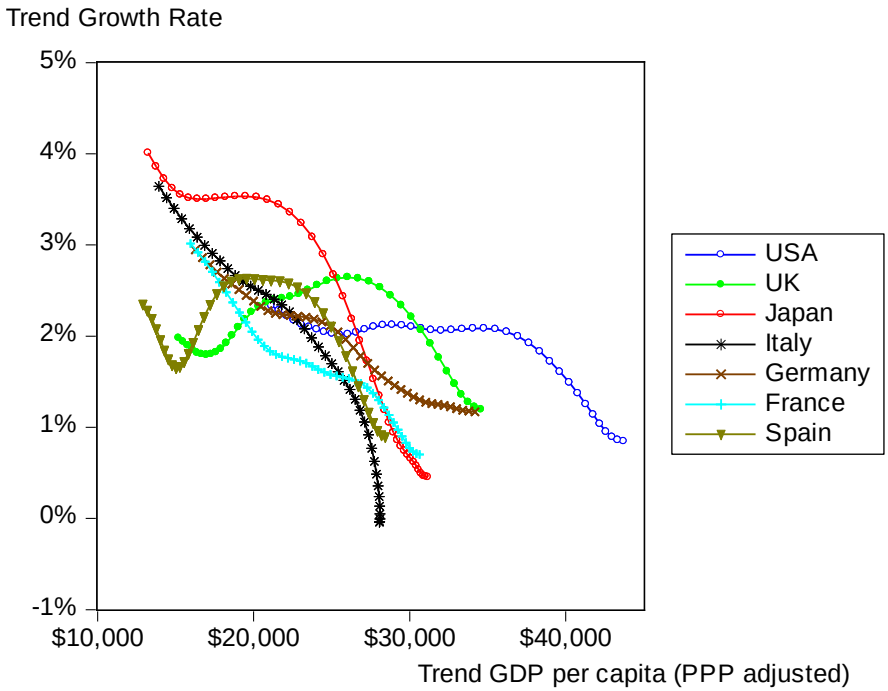


Figure 15. OECD Estimates of U.S. Output Gaps