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Lessons and Implications from the European Sovereign Debt Crisis

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Abstract

The European sovereign debt crisis entered into the stage of contagion in the late 2010 as it spread first from Greece to Ireland, and then to Portugal and Spain. The European sovereign debt crisis truly resulted from a combination of various factors, some as more precipitating causes while others as more fundamental or deep-rooted causes. They include easy credit expansion during the 2003-2007 period, the global financial crisis and subsequent global recession of 2008-2012, fiscal and trade imbalances of the European countries involved in the crisis, and inherent structural problem of the EMU. From the experience of the European sovereign debt crisis, we could confirm some early warning indicators of a crisis such growth of domestic private credit and public borrowing, worsening government balances as well as external balances. Long-term interest rate spreads and an increase in fees charged by investment banks for bond issuance would be precipitating or concurrent warning indicators for a crisis. Implication from the European sovereign debt crisis for the euro area or potential economic and financial integration of East Asia is not necessarily to disband, break up or abandon a monetary union. Instead, a better alternative is to remedy problems and shortcomings exposed by the current crisis and to move toward a deeper integration.

JEL Classifications: F34, H12

Keywords: sovereign debt, financial crisis, European crisis, contagion effect, early warning indicators

1. Introduction

The European sovereign debt crisis began when the Greece government made an official request to the EU and IMF in May 2010. Some trace the beginning of the crisis to November 2009 when the Greece government announced its revised 2009 budget deficit forecast of 12.7%, more than twice what the country had previously disclosed. Heavy bank withdrawals have occurred in weaker Eurozone states such as Greece, Portugal and Spain. However, others trace the origins of the crisis to the inherent structural problem of the Economic and Monetary Union (EMU), that is, the Eurozone. The European sovereign debt crisis truly resulted from a combination of various factors, some as more precipitating causes while others as more fundamental or deep-rooted causes. They include easy credit expansion during the 2003-2007 period, the global financial crisis and subsequent global recession of 2008-2012, fiscal and trade imbalances of the European countries involved in the crisis, and inherent structural problem of the EMU.

The Greece sovereign debt crisis spread to other peripheral countries in the euro zone as investors perceived them having similar economic conditions and sharing economic characteristics with Greece. The European sovereign debt crisis entered into the stage of contagion in the late 2010 as it spreads first from Greece to Ireland, and then to Portugal and Spain, and most recently to Cyprus. The Irish bailout was also supposed to calm investors' fears that the financial crisis would spread to other countries in the Eurozone, particularly Portugal and Spain. Investors were concerned that like Ireland, Portugal and Spain would need bailouts as well. Although Portugal's banks were healthier than Ireland's, investors lost confidence in Portuguese bonds after the Irish bailout because they worried that Portugal's slow growth and large budget deficit would lead Portugal to seek a bailout. Despite Spanish protests that Spain was not like Greece, Ireland, or Portugal, investors were not convinced that Spain was financially healthy either. Spain was heavily exposed to Portuguese debt, so as the Portuguese crisis worsened, Spain faced an increasing risk of financial loss.

In this paper, we attempt to sort out different factors affecting the five affected European countries and find out some indicators of the crisis from the lessons of the European sovereign debt crisis. In the next section, evolution of the crisis form Greece and its spread to other peripheral countries, Ireland, Portugal, Spain and Cyprus, will be discussed. The third section will review common causes as well as idiosyncratic factors peculiar to individual countries. In the fourth section, we discuss conditions for fiscal sustainability, and the last two sections will devote to lessons from the crisis and implications from the crisis to the Eurozone area as well as other countries.

2. What Happened?

Even though major European banks were exposed to losses in the US asset-backed securities market, there was no serious concern in regard to European sovereign debt. However, reassessment of asset prices and growth prospects prompted by the global financial crisis brought about a renewed concern about macroeconomic imbalances in some European countries in the early 2010. While foreign capital flocked to safer countries with near zero interest rates such as Germany, Netherlands, Switzerland, Denmark and Finland, lenders demand higher interests to the countries with excessive national debt, large fiscal deficits and current account deficits. Those countries had a hard time to finance budget deficits or service existing debt and they are forced to implement austerity measures. This crisis of confidence has resulted in the widening of bond yield spreads and risk insurance on CDS between these risky countries and other safer European countries. Eventually Eurozone countries sought help from the EMU and IMF.

2.1. Greece

Greece had economic growth rate of about 4% in the early 2000s, twice higher than the EU average. Greece's significant economic growth resulted from its membership in the EU and its adoption of the euro in January 2002. It continued to enjoy access to EU and international funds at low interest rates because Eurozone member countries were considered financially and politically stable, regardless of their actual, individual financial circumstances. Greece's economic growth, however, masked some of the problems with the Greek economy that contributed to the financial crisis in 2010. Greece had structural problems such as double deficits, both current account deficits and budget deficits and its business cycle sensitive industries. The global financial crisis of 2008 hit Greece's economy most hard, and the Greek government's heavy spending to keep the economy functioning caused further increase in its public debt. When the Greek government revised its budget deficit from 3.7% of GDP to 13.6%, creditors and investors were very concerned about the Greek economy and began to reassess of asset and growth prospects of Greece. As a result, it could no longer rely on the sources that had previously fueled its economic growth—access to international loans, trade, and consumer spending.

The government spent about half of the country's GDP every year between 1995 and 2008. To stimulate the economy during the global financial crisis in 2008 and 2009, the government increased spending even further, which increased the debt to more than half of GDP by 2009. In 2009, Greece had the highest debt in the EU at 126.8% of GDP. Economists predict that Greece's debt will continue rising through at least 2014. As of April 2012, Greece's debt was approximately 127.8% of GDP (about €286 billion). Compounding the problem, the government falsely reported data and gave the impression that its debt situation was not dire. The government originally reported its 2009 deficit at 3.7%, but later revised it to 13.6% of GDP (Martin & Waller, 2012). The government also lost large amounts of potential tax revenues from the "shadow" or underground economy, comprised of legal and illegal operations that go unreported and untaxed each year. Between 1996 and 2006, the size of Greece's shadow economy was 20% to 25% of GDP. Furthermore, revenue losses due to tax evasion amounted to 3.4% of GDP in 2006.

Greece's fiscal deficit has been above 3% of GDP almost every year for ten years, in violation of the Stability and Growth Pact (SGP) (revised data from 2010 shows that it was at 5.1% in 2007 and 13.6% in 2009). Under the SGP, EU member states agreed to limit their budget deficits to 3% of GDP, but the SGP's enforcement mechanisms were not sufficiently effective to force countries to comply. As discussed above, the influx of EU funds and international loans made it easy and cheap for Eurozone governments to borrow and build large deficits and debts over time. Government inefficiency also provoked the crisis in Greece. The inability of the government to take control of Greece's debt by raising taxes or cutting spending led to a loss of investor confidence in Greece. Greece implemented few fiscal reforms to stimulate growth and reduce its debt after joining the EU. Since it was unwilling to raise taxes to pay for social welfare programs (or cut those programs), the government's only option was to borrow to finance its operations, which increased its debt.

To refinance its deficit, Greece began issuing bonds with short maturity periods, meaning that it would have to repay the bonds in relatively short periods of time. As bond payments became due, Greece had to pay investors more than it could afford because of its low revenue due to slow economic growth. Concerned that Greece would be unable to pay them in full, investors began requiring higher interest rates to purchase Greek bonds. As those concerns grew along with Greece's debt, borrowing became prohibitively expensive and investors stopped investing in Greek bonds because of the associated risks. As a result, Greece eventually required two bailout packages to secure the funds needed to pay investors. In May 2010, the Greek government requested financial support from the European Union (EU) and International Monetary Fund (IMF), and European leaders approved a $146 billion (€110 billion) package of emergency loans to avert a sovereign default by Greece and to prevent a confidence crisis spread to other European countries. At the same time, they required a series of austerity measures, which was met by the Greece people with a rage. While Greece's austerity measures brought down its budget deficit, it also contributed to a deeper recession with a decline of GDP by 7% in 2011 as well as in 2012 and a record high unemployment rate of 27% in 2012.

To prevent potential a Greek sovereign default, bank run or military coup, a second bailout loan worth €130 billion was given in February 2012 to Greece, conditional on further implementation of austerity measures and a debt restructure agreement. Private debt holders of Greek sovereign debt voluntarily agreed to accept a bond swap with an about 50% write-off, a deep haircut, in some combinations of short-term notes and long-term bonds of 10 plus years maturity. This debt restructure agreement resulted in a reduction of the Greek sovereign debt from €350 billion to €240 billion in 2012. The new government elected in June 2012, facing a further worsening recession and a delay in its reform schedule, requested an extension of the deadline of restoring its budget in shape from 2015 to 2017 and the Eurogroup approved the request. In 2012, the Troika agreed to provide Greece with a last round of significant debt relief measures, while the IMF extended its support with an extra €8.2bn of loans to be transferred. Faced by the threat of sovereign default, final attempts to reach a renegotiated bailout agreement were made by the newly elected Greek government in 2015. However, the Greek government unilaterally broke off negotiations in late June, and on July 5, 2015, a large majority of Greek citizens voted to reject the bailout terms as the Greek government campaigned for rejection of the new terms. In July Eurozone leaders reached a provisional agreement on a third bailout programme to save Greece from bankruptcy, but with tougher conditions imposed on the Greek government.

2.2. Ireland

Ireland was the first country after Greece to face the impact of the European financial crisis. Unlike other countries that the crisis affected, Ireland's financial markets were not strongly linked to Greece. For example, Ireland did not hold a significant amount of Greek debt. Ireland's financial situation was also significantly different from Greece. Unlike Greece, Ireland did not suffer from a lack of competitiveness, or falsify its fiscal data. Furthermore, it began making spending cuts fairly quickly after its debt began to rise rapidly in the aftermath of the global financial crisis and before it was forced to seek a bailout in November 2010 to help cover the cost of rescuing its banking sector. In 2009, the government announced a goal of cutting €4 billion from the 2010 budget. The Irish crisis is not originally related to the Irish sovereign debt. Its crisis in some aspects was similar to the US financial crisis. When the property boom collapsed in 2007, the Irish banks ended up with defaulted loans by homeowners and property developers, and the Irish government issued a two-year guarantee to depositors of banks and bond-holders in 2008 to prevent a bank run and an asset management agency was created in 2009 to acquire real estate related loans from the Irish banks.

Ireland experienced outstanding economic growth from the mid- to late-1990s, largely due to a construction and housing boom. Immigration increased along with the growth of the construction sector and the economy in general as the Irish economy created approximately 90,000 new jobs annually and attracted over 200,000 foreign workers, many of whom were employed in the construction sector. The higher population and number of income earners increased the demand for housing, which led to an increase in housing prices. To meet this growing demand, Irish banks financed mortgage loans by borrowing from international lenders. However, the banks did not always ensure the creditworthiness of mortgage applicants due, in part, to aggressive lending practices meant to help them compete with foreign financial institutions that were operating in Ireland, particularly U.K. banks that also financed mortgages. Because Ireland was a member of the Eurozone, international lenders presumed Ireland was stable and posed little financial risk. Ireland's continued economic growth also convinced foreign lenders to extend credit to Irish banks. Lenders, therefore, provided inexpensive loans to Irish banks at low interest rates. In 2008, Irish banks' combined debt from making loans for property purchases had reached over 60% of GDP. The banks could only afford to repay funds they had borrowed from international lenders as long as they continued to receive interest payments from their own borrowers.

By 2008, however, the housing demand in Ireland had fallen, which slowed the construction sector and eventually the entire Irish economy. Unemployment increased as construction jobs disappeared. Consequently, many newly-unemployed property owners began falling behind on loan payments and defaulting on loans, leaving Irish banks unable to repay their lenders. Government revenue also fell due to losses in property taxes. By that time, it was also clear that Irish banks lacked the funds necessary to finance their daily operations. The government intervened by providing investors with guarantees for the banks' bonds and taking large ownership stakes in banks to prevent them from collapsing. The government also created the National Asset Management Agency (NAMA) to purchase bad loans from banks at discounted prices. NAMA was intended to stabilize the financial system by removing banks' most risk loans from their balance sheets. By doing this, the banks could make more loans because they no longer needed to hold as much money in reserve to cover the potential losses on bad loans.

The government borrowed to finance its rescue of the banking sector, which caused its sovereign debt to rise from 24.4% of GDP in 2007 to 59.4% of GDP in 2009. By 2010, it was clear that the Irish government could not cover the losses in the banking sector. As the economic situation worsened in Ireland, investors lost confidence in Ireland's ability to repay its debts, and the government was no longer able to issue bonds on the international market to raise funds. Ireland, therefore, sought a bailout package from the EU and IMF in November 2010. It accepted a three-year bailout package of €85 billion to help with government funding and the rescue of failing banks. In return, Ireland committed to reducing its deficit to 3% of GDP in four years by cutting at least €15 billion from its budget.

European Union finance ministers hoped that the Irish bailout package would stabilize Ireland's economy and encourage investment in Ireland. However, as news of the bailout spread, interest rates on Irish bonds increased, indicating a lack of investor confidence about whether Ireland could meet its debt obligations, even with the bailout, and whether investors would experience losses if Ireland were forced to restructure its debt. The credit rating agencies Standard & Poor's and Moody's decisions to downgrade Ireland's credit rating following the bailout reflected the lack of reassurance the global market felt. In 2011, Ireland's successful efforts to meet budget deficit targets reassured some investors. Ireland reduced its deficit from €22 billion in the third quarter of 2010 to €21 billion in the third quarter of 2011. Its commitment to fiscal responsibility set it apart from Greece and Portugal. Unlike these countries, Ireland's economy is forecasted to grow in 2012 due, in part, to an increase in exports, especially manufactured goods. Even before the crisis, Irish exports were attractive to international customers, especially pharmaceuticals, chemicals, and software-related products. Ireland has also facilitated trade by removing barriers and Irish exports are more affordable because the euro's value against the dollar has decreased because of the crisis.

Not all investors, however, are convinced that Ireland is on the mend. Moody's, for example, lowered Ireland's credit rating further to below investment grade in July 2011, stating that even with the bailout, Ireland does not have sufficient funds to meet its obligations. Moody's also expressed concern that investors would have to take haircuts on their bonds if Ireland were to restructure its debt. As a result of Moody's actions and a continued lack of investor confidence in Ireland's recovery efforts, Ireland will probably not be able to reenter the international bond market in 2013 as it hoped. As the Greek crisis was on progress and the Irish bank losses reached to an unmanageable level, the credit rating of Ireland was dropped rapidly, bank depositors and bond holders under state guarantee began to cash in 2009 and 2010. Ireland's GDP fell by 7% in 2009, the rate of unemployment increased to 14% in 2010, and the budget deficit to GDP ratio reached 32% in 2010. When the interest rates on Irish sovereign debt rose rapidly, the Irish government sought financial support from the EU and IMF and obtained bail-out loan worth $89 billion (or 67.5 billion euros) in November 2010 with a condition that its budget deficit is to be reduced to the level of 3% of GDP by 2015. Ireland will have 7- 10 years to pay off its loans compared to three years for Greece to repay its loans. In 2011 the Eurogroup slashed the interest rates on loans from around 6% to 4%, 3.5% and 2.5% depending on the types of loans. European Union finance ministers decided recently to extend the maturities of emergency loans to Ireland by seven years to smooth out Ireland's return to markets. With Ireland's favorable economic outlook and export-led recovery, it is expected that Ireland will gradually get out of its recession.

2.3. Portugal

Since Portugal joined the euro in 1999, Portugal has had the lowest growth in the Eurozone and suffered from low productivity and competitiveness. Between 2001 and 2007, Portugal experienced only 1.1% average annual growth. Meanwhile, increased government spending and decreasing tax revenue caused the deficit to rise. As the country's deficit grew, it did not have sufficient funds to pay its increasing debt. Nevertheless, other aspects of Portugal's financial situation seemed comparable to countries in the Eurozone that investors did not think substantial financial risks in

Portugal initially. For example, Portugal's debt was 77% of GDP in 2010, as compared to 83.2% of GDP in France.

Since joining the EU in 1986 Portugal experienced relatively high GDP growth due, in part, to an increase in trade. Portugal's low labor costs and an influx of EU funds contributed to the development of its infrastructure. As a result of joining the EMU and adopting the euro, Portugal's exchange rate stabilized and inflation decreased. However, the government did not use newly-available funds to increase production and promote entrepreneurship, which would, in turn, promote economic growth. Instead, it channeled the funds into sectors that government officials and their supporters favored. From the mid-1990s onwards, Portugal lacked the incentive to continue implementing economic reforms and scaled back reform measures because it had easy access to EU and international funds despite whatever flaws its economy may have had. These developments contributed to very low economic growth in the 2000s. In the late 1990s, Portugal's growth rate was an average of 3.9% of GDP, but had fallen to an average of 0.4% of GDP by the late 2000s.

Portugal's lack of competitiveness also contributed to low economic growth. Portugal's main exports, low-tech inexpensive goods, have lost market share to cheaper producers in emerging markets. Although Portugal was once competitive in the service industry because of low labor costs, Eastern European countries with even lower labor costs decreased Portugal's competitiveness in this area when they joined the EU. While Portugal's deficit was under 3% between 2002 and 2004, it rose to 5.9% in 2005. The government then unsuccessfully attempted to reduce the deficit, which reached a high of 10.1% of GDP in 2009. This increase resulted from an 11% drop in tax revenue due to the economic slowdown resulting from the global financial crisis. With less revenue, the government had to rely on borrowed funds to finance spending on its generous social programs. In 2010, Portugal's debt was 93% of GDP and was projected to increase to 97.3% of GDP in 2011.

To finance the growing debt, the government issued new bonds. However, investors demanded higher interest rates as incentives to buy, causing the debt to increase further. The government relied on domestic banks to buy government bonds, which left the banks holding risky debt. As Portugal's debt continued to grow, investors became increasingly unwilling to lend to the country. By the spring of 2011, it became clear that the Portuguese government would not be able to repay its debt. In the beginning of the year, it had €2 billion in cash reserves and was due to repay investors €4.2 billion on government bonds in April and another €4.9 billion in June. The Portuguese parliament complicated matters by rejecting proposed austerity measures. Portugal became the third Eurozone country to request a bailout from the EU. Portugal received a bailout package of €78 billion on the condition that it reduces its deficit. In 2011, Portugal was supposed to reduce its deficit to 5.9% of GDP from 9.1% in 2010, but failed to do so. Under the terms of the bailout agreement, Portugal has until 2014 to lower its deficit to below 3% of GDP as mandated by the SGP.

The credit rating agencies were not optimistic upon hearing the news of the Portuguese bailout. Moody downgraded Portugal to junk status due to its belief that the bailout would not be enough to stabilize Portugal's economy. Standard & Poor's and Fitch Ratings have since done the same. In October 2011, Moody's downgraded nine individual Portuguese banks because it doubted that these banks could be recapitalized since they have a number of loans on their books that are either already non-performing or are at risk of becoming so. Although international lenders have been unwilling to lend to Portuguese banks for over a year, credit rating agencies' attitudes could lead to a greater loss of investor confidence that could continue to shut Portugal out of financial lending markets.

As Portugal implemented austerity measures to try to bring its deficit under control, the economy contracted further. As a result, many workers left Portugal in search of jobs after the government cut wages and benefits for public sector employees and raised taxes throughout the country. Portugal is largely dependent on its exports for revenue, but most of its trading partners have been affected by the crisis—70% of its exports go to the EU, including 24% to Spain. As a result of reduced trade, Portugal cannot rely on exports to generate the revenue necessary to pay its debts. The crisis in

Portugal poses financial risks for countries that have significant exposure to Portuguese debt, especially Spain—the next country to face the effects of the crisis.

2.4. Spain

Similar to Ireland, housing-market and banking crises provoked a sovereign debt crisis in Spain. Spain enjoyed substantial economic growth prior to 2007, but with the end of a housing boom in 2007 and the recession in 2008 resulting from the global financial crisis, Spain's deficit increased. Despite the high level of private debt Spanish citizens held prior to the crisis, the country's deficit was relatively low when compared to the rest of the Eurozone. In 2007, Spain's deficit was 1.132% of GDP compared to the Eurozone average of 1.83%. By 2008, however, Spain's deficit had risen to 4.9% of GDP compared to the Eurozone average of 2.58% of GDP. By 2010, Spain's deficit had risen to 9.7% of GDP. As the fourth-largest economy in the Eurozone, Spain has been characterized as "too big to fail," but the EU and the IMF do not have enough money to bail out an economy the size of Spain's.

Between 1995 and 2007, a construction boom fueled remarkable economic growth as housing prices rose 220%. The demand for housing soared as homeownership became a goal for the majority of Spaniards due to the unavailability of affordable rental options in the mid- twentieth century and a tax policy introduced in the 1980s that made mortgage principal and interest tax-deductible. Increased immigration to Spain due to the availability of construction jobs also increased demand for housing. Unemployment fell from 23% in 1986 to 8% in mid-2007. The availability of cheap credit from international lenders to banks and other lending institutions like the cajas de ahorros (Spain's savings and loan banks) allowed Spanish households and businesses to borrow heavily to finance real estate purchases. Like other countries in the Eurozone, Spain benefitted from the low interest rates available to Eurozone members. As a result, Spain turned from a country relying on virtually no external funding in 1996 to one that relied heavily on international lenders in the 2000s. By 2008, Spain had borrowed the equivalent of 9.1% of GDP.

In 2007, housing prices began to drop because property was overvalued. Unemployment subsequently rose as jobs in construction disappeared. As the housing market slowed, lenders issued loans to homebuyers that posed risks of default. As a result of growing unemployment (which rose to over 20%), many people could not afford to make their mortgage payments. Developers also began to default on their loans as the demand for new construction dropped, so banks ended up holding bad loans from both individuals and businesses. As bad loans increased, Spanish lenders' revenue fell to the point that they lacked the funds to pay their own foreign lenders. The government eventually stepped in to rescue the banking sector. It first selectively targeted the most indebted banks, but it soon provided funds to the entire banking sector, including €99 billion to recapitalize the cajas. It feared that without more robust stimulus measures to help the banking sector, the country risked a financial collapse and recession. As government spending increased, so too did the deficit. The government had a budget surplus of 1.9% of GDP in 2007, but by 2009 it had a deficit of 11.2% of GDP. Consequently, its debt rose from 26.52% of GDP in 2007 to 43.73% of GDP by 2009. As of April 2012, Spain owes approximately €614 billion or 61.1% of GDP.

The major credit rating agencies have downgraded Spain's credit rating. They argue that Spain faces great difficulty in significantly reducing its debt because reforms will not restore market confidence and economic growth quickly enough to avoid a debt default. The government has imposed a number of austerity measures that have burdened citizens already facing the challenges of a recession. A new government has recently taken charge because of citizens' dissatisfaction with the effects of the crisis. Interest rates on Spanish bonds were dropping in early 2012 after the European Central Bank (ECB) helped stabilize Eurozone banking sectors by making low-interest loans to Eurozone banks. In March 2012, however, the government announced that it would not meet the 4.4% of GDP budget deficit target set by the European Commission for 2012. Instead, it aims to cut the deficit to 5.3% of GDP from the 2011 deficit of 8.5% through a proposed deficit-reduction package of €27 billion. The government stated that the 2011 deficit was greater than what had been forecast by the previous administration, meaning that it would have to make much larger cuts than previously thought to meet the original target — something it was unwilling to do. Following this announcement, interest rates on Spanish ten-year bonds rose, reaching 5.81% in April 2012 — their highest level since the beginning of December 2011. The increase reflected investors' concern that more austerity would cause the economy to contract further, leading to more unemployment, loss of tax revenue, and increased social welfare costs.

2.5. Cyprus

Cyprus is the last victim of the European sovereign debt crisis. The economy of Cyprus was hit in 2012 because of its banks to exposure to the Greek debt haircut. International credit rating agencies downgraded the Cypriot economy into junk status and the government was not able to refund its state expenses. The Cypriot Government requested a bailout from the European Financial Stability Facility or the European Stability Mechanism on 25 June 2012, citing difficulties in supporting its banking sector from the exposure to the Greek debt haircut. The bailout terms include strong austerity measures, including cuts in civil service salaries, social benefits, allowances and pensions and increases in VAT, tobacco, alcohol and fuel taxes, taxes on lottery winnings, property, and higher public health care charges.

The idea of imposing any sort of deposit levy was dropped when the final agreement was made in March, 2013, because the targeted closure of Laiki and recapitalization plan for Bank of Cyprus helped significantly to reduce the needed loan amount for the overall bailout package. €10billion was still sufficient without need for imposing a general levy on bank deposits. Conditionality for activation of the Cypriot bailout package includes recapitalization of the entire financial sector while accepting a closure of the Laiki bank, implementation of the anti-money laundering framework in Cypriot financial institutions, fiscal consolidation to help bring down the Cypriot governmental budget deficit, structural reforms to restore competitiveness and macroeconomic imbalances, and privatization program According to IMF, the Cypriot debt-to- GDP ratio is on this background now forecasted only to reach 100% in 2020, and thus remain within sustainable territory. The ECB and the Eurogroup's abrupt imposition of harsh measures upon means institutional investors are now legitimately afraid of the domino effect spreading to other European countries.

3. Why Did It Happen?

3.1. Inherent Structural Problem of EMU

The most fundamental cause of the crisis can be found from EMU's inherent structural contradiction. EMU is a monetary union without a fiscal union. While the Eurozone countries have a common currency and the same monetary system and policy, each country had freedom in fiscal policies, even though they are required to follow a similar fiscal path, which resulted in fiscal free riding of peripheral economies such as Greece and Portugal. Furthermore, there were no Europe-wide common bank regulation, no common approach to bank deposit insurance, and no common recapitalization process.

Many Eurozone countries missed the opportunity to tighten fiscal policy when it was really needed. First, national governments received large revenue windfalls because the credit and housing booms generated an increase in tax revenue through expenditure taxes, transaction taxes and capital gains taxes. Second, low interest rates before the crisis made debt-servicing costs lower. Instead of counter-balancing more risk-taking of the private sector and servicing sovereign debts while servicing costs were low, national governments joined the private sector in the spending race, sometimes leading and more active as the case of Greece. Fiscal policies of many countries became less counter-cycle during this period.

3.2. Credit Expansion

Before the adoption of the euro, European countries of different credit worthiness faced different interest rates for their private credits as well as government bonds. However, countries in the monetary union received similar interest rates for their credits because of implicit Germany guarantee (Lewis, 2011). Prior to the global financial crisis of 2008, low long term interest rates prevailed with a decline in financial risk indices. This brought credit free riding of peripheral economies, in particular, Greece, and both private and government spending increased because they received very favorable credit terms much better than what they were deserve to get. An increase in government borrowing during this credit boom occurred mainly in Greece and Portugal. In Spain and Ireland, it was not government borrowing increase, but private borrowing increase by corporations in Spain and by households in Ireland. These increases in borrowing caused property boom fueling debt accumulation, which burst at the height of the global financial crisis.

3.3. Fiscal Imbalance

The average fiscal deficit in the euro area in 2007 was only 0.6% before it grew to 7% during the financial crisis. The only exception was Greece whose fiscal deficits were much higher than other Eurozone countries. Figure 1 shows fiscal deficits of the five countries that experienced the sovereign debt crisis.

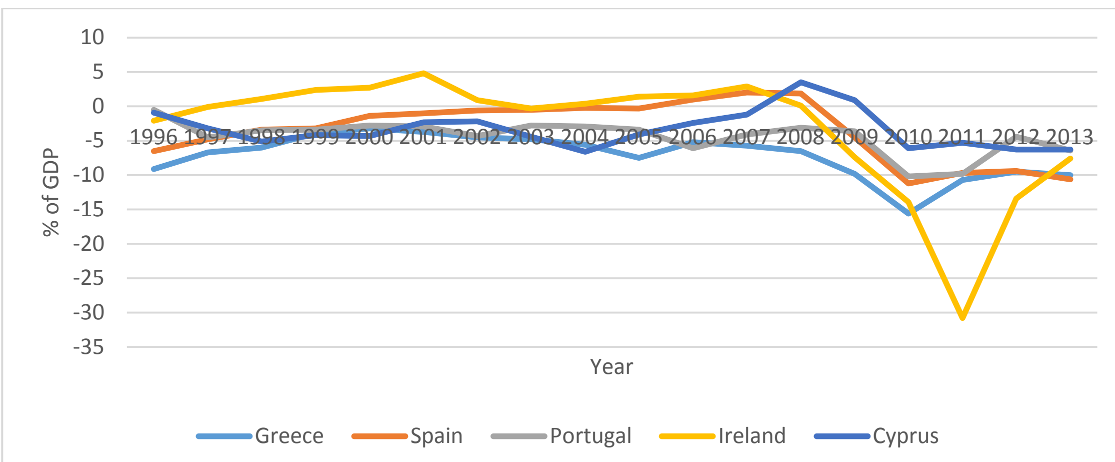

Figure 1. Budget deficits as % of GDP

Greece's fiscal deficit has been above 3% of GDP every year for the last 18 years in violation of the Stability and Growth Pact (SGP). Other countries involved in the sovereign debt crisis did not have high level of the budget deficit until the crisis occurred. Spain, although experienced high budget deficits in the late 90s, was able to control its deficit under 3% in conformity with the GSP until the crisis. Ireland, Portugal and Cyprus all had budget deficits under control, sometimes better position than France or other European countries. Government's mounting debts for most involved countries are a response to the economic downturn as spending rises and tax revenues fall, not its cause.

3.4. External Imbalance

One of the benefits of monetary union is easiness and efficiency of resource reallocation. Capital would move from capital abundant countries to capital scarce countries and labor would move from low productivity countries to high productivity countries, leading to convergence of interest rates and productivity. A trade deficit, per se, is not necessarily a bad thing. A trade deficit requires a corresponding inflow of capital which can be used for capital investment, lowering interest rate and increasing capital productivity.

However, sustained large trade deficits pose several risks (Lane, 2012). If capital inflows fuel consumption or consumptive investments such as property construction rather than productive capital investments, lower interest rate causes property bubbles. This misguided spending on non-tradables takes resources from the more productive tradables sector and raising the labor costs, resulting in structural weakness and less competitiveness. Furthermore, the countries with sustained large trade deficits have potential risk of banking crisis in the event when a reversal of capital flows occurs. South Korea had this problem with Asian financial crisis of 1997-1998, even though South Korea at that time had trade surpluses.

Figure 2 shows current account balances of the five countries that underwent through the sovereign debt crisis. Greece and Portugal, the first two countries experienced the sovereign debt, have had persistent trade deficits, particularly above 10% of GDP since 2005. Some pointed about that the sovereign debt crisis has more to do with trade deficits than fiscal deficits (Krugman, 2012; Greenlaw, Hamilton, Hooper, & Mishkin, 2013) because external deficits requires a corresponding inflow of capital to fund it and this is typically accompanied by borrowing from abroad.

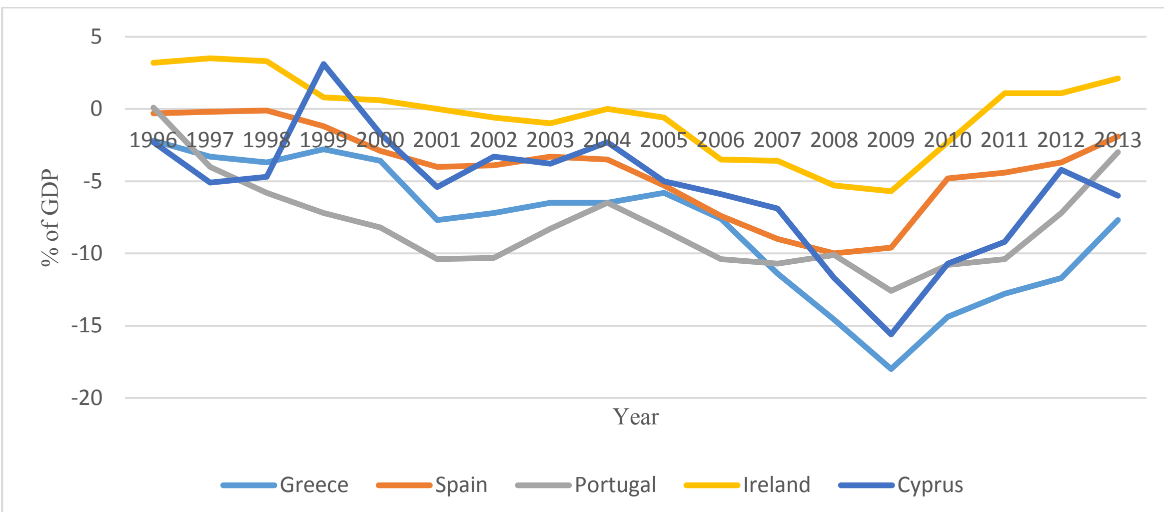

Figure 2. Trade deficits as % of GDP

3.5. Global Financial Crisis of 2008

Before the global financial crisis of 2008 creditors as well as regulators regarded sovereign debt form the Eurozone was safe regardless of strength of individual countries. Creditors held substantial amount of sovereign debt from the periphery economies because of extra small premium. However, as the global financial crisis progressed, creditors and investors were concerned about sustainability of sovereign debt of Greece and other countries. The global financial crisis prompted creditors to reassess economic conditions and growth prospects of the Eurozone, in particular, those countries with macroeconomic imbalances. They also had doubts about the possibilities of policy makers to quickly contain the crisis because an individual country, being a member of a monetary union has less monetary choices compared to an independent country with its own currency.

4. Conditions for Fiscal Sustainability

Fiscal sustainability requires that the government ought to create and maintain primary surpluses the present value of which is (greater than or) equal to the original debt. Following Alogoskoufis (2012), the inter- temporal government budget constraint of a solvent government states that,

$$B_t = E_t \sum \{ \prod 1 / (1+ r_{i+j}) \} S_{t+i} \tag{1}$$

where B = public debt, E $B_t = E_t \sum \{ \prod 1 / (1+ r_{i+j}) \} S_{t+i}$ = the mathematical expectations operator, r = the real interest rate, and S = the primary surplus of the government budget. Equation (1) simply requires that the expected present value of future primary surpluses is equal to the initial public debt at time t. A fiscal path that only satisfies (1), is sustainable, as the only restriction that the budget constraint (1) places on a government is that the present value of its expected future debt, as we move further and further into the future, tends to zero. This can be written as

$$\lim E_t \sum \{ \prod 1 / (1+ r_{i+j}) \} B_{t+n} = 0 \tag{2}$$

The inter-temporal government budget constraint (1), which defines fiscal sustainability, does not prevent the government from staying permanently in debt, or even from increasing the amount of its debt. For example, if the real interest rate is positive, a constant value of B, meaning that the government never pays back its debt, clearly satisfies the inter-temporal government budget constraint. Even an increasing level of debt satisfies the inter-temporal government budget constraint, for as long as the growth rate of government debt is less than the real interest rate. Even a rate of growth of government debt which is higher than the real interest rate satisfies (1) and (2), if it only lasts for a limited number of periods and is then followed by a policy of limiting the growth rate of the debt to a rate below the real interest rate.

From the viewpoint of equations (1) and (2), there is an infinite number of sustainable paths of fiscal or debt policy, many of which involve a quickly rising level of government debt for a finite and possibly large number of periods. To put it another way, governments can always claim that they intend to raise primary surpluses in the future to limit the growth rate of government debt. A sustainable path of fiscal policy in the sense outlined above cannot be monitored credibly by investors in government bonds. If investors doubt government pronouncements about future fiscal action to limit the growth of the debt, then interest rates may have to rise (reflecting default probabilities), making the growth rate of the debt even higher, and thus making the debt situation worse. A confidence crisis may ensue, such as the one facing Greece and other Euro area economies. Thus, sustainability in the sense of equations (1) and (2) cannot possibly be monitored or even measured adequately, since that would require governments that would be able to pre-commit to the entire future path of primary government surpluses.

To be more practical, we can define a sustainable fiscal path as one that at the very least stabilizes the government debt to GDP ratio. This definition is stronger than the previous one, and, more importantly, sustainability in this sense can be easily measured and monitored. Following the practice of IMF (Manasse, Roubini, & Schimmelpfennig, 2003; Wyplosz, 2007; Alogoskoufis, 2012), the flow version of the inter-temporal government budget constraint as

$$B_t - B_{t-1} = r_t B_{t-1} - S_t \tag{3}$$

The government deficit leads to a rise in government debt, whereas the government deficit consists of interest payments on the debt minus the primary government surplus. Dividing both sides by GDP, we have

$$b_t - b_{t-1} = [(r_t - g_t)/(1 + g_t)] b_{t-1} - s_t \tag{4}$$

where b = the debt to GDP ratio, s = the primary surplus to GDP ratio, and g = the growth rate of GDP. From (4), the primary government surplus that is consistent with a constant sovereign debt to GDP ratio is given by

$$s_t = [(r_t - g_t)/(1 + g_t)]\ b_{t-1} \tag{5}$$

A primary surplus to GDP ratio which is at least as high as that implied by equation (5), is associated with fiscal sustainability or solvency. If it is lower, then the fiscal situation is unsustainable and the government is insolvent.

From equation (5), one can see that there are four factors that determine whether a government is solvent: the predetermined (historical) debt to GDP ratio, the primary surplus as a share of GDP, the real interest rate on government bonds and the growth rate of real GDP. These four factors are not independent of each other, and, with the exception of the primary surplus, they are outside the direct control of governments. In an open economy, in the short and the medium run, the growth rate of GDP depends on the state of the economic cycle, on the determinants of domestic investment, and in particular the expectations of domestic firms and households about the future profitability of investment in physical and human capital, as well as on the determinants of domestic savings and the real interest rate. All these factors can be affected by government policy only indirectly. In the long run, the growth rate may well be exogenous, determined by population growth and technological progress. With full capital mobility, for a small open economy in a monetary union, the real interest rate is also largely exogenous and outside the immediate control of the government.

The historical sovereign debt to GDP is predetermined and cannot be changed, unless the government defaults. The debt to GDP ratio has been determined through an accumulation process than was a function of past outcomes of the government budget. The main element under the direct control of a government in the short run and in the medium run is the government primary surplus to GDP ratio. It is the main tool that can be used by a government to achieve solvency. Although it is not a perfect tool of policy, the government primary surplus can be changed through decisions on primary government expenditure and revenue.

5. Lessons from the Crisis

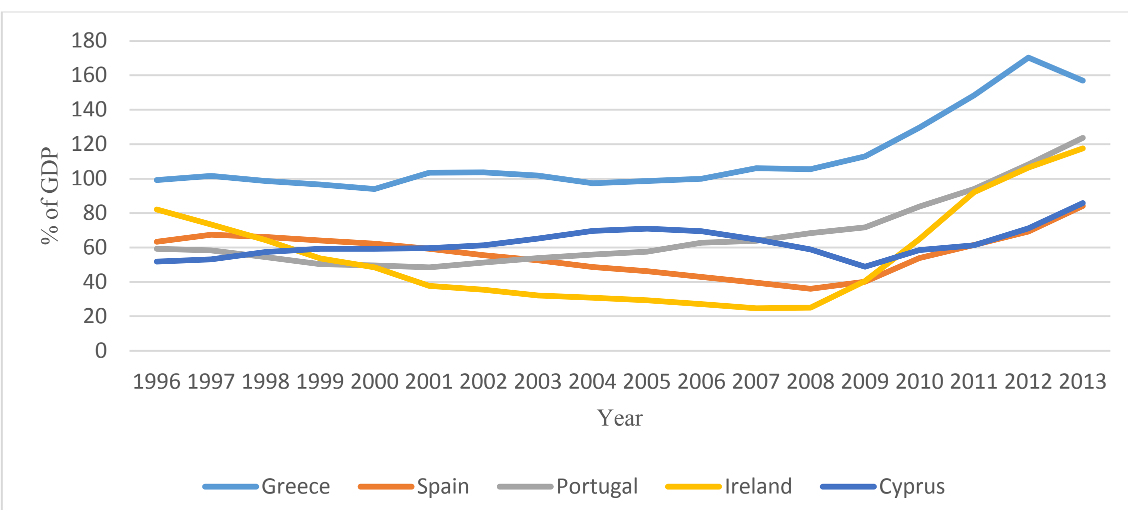

Figure 3. Sovereign debt as % of GDP

By analyzing the European sovereign debt crisis, we may be able to come up with a stylized set of early warning indicators. Figure 3 shows sovereign debt as % of GDP for the period of 1995 to 2012. Greece is the only country that had the sovereign debt to GDP ratio higher than 100% in the late 90s and early 2000s. The sovereign debt of Ireland and Portugal exceeded 100% of GDP only when the crisis spread to their countries.

Table 1 shows correlation coefficients between the sovereign debt and cumulative fiscal deficits and between the sovereign debt and trade deficits for the five affected countries for the period of 1996 to 2013. Data for correlation analysis are from the European Central Bank for the variables of sovereign debts, trade deficits and fiscal deficits of the five Eurozone countries, and the Pearson correlation method is used.

Table 1. Correlation coefficients between debt and cumulative deficits (1996-2013)

	Greece	Ireland	Portugal	Spain	Cyprus
Debt – Cumulative Trade Deficits	0.882	0.558	0.855	0.001	0.371
Debt – Cumulative Fiscal Deficits	0.887	0.962	0.922	0.554	0.632

A high correlation is expected between cumulative fiscal deficits and the sovereign debt level as governments have to finance budget deficits by borrowing and incurring additional sovereign debt. An interesting observation is that cumulative trade deficits also have a negative effect on fiscal sustainability. The only exception is Spain which maintained the sovereign debt below 80% of GDP for the most of time. Table 2 shows that the interest rate spreads are highly correlated with the sovereign debt level, fiscal deficits as well as trade deficits. The countries with higher levels of sovereign debts, trade deficits and fiscal deficits tend to have higher interest spreads.

Table 2. Correlation between Interest spreads and debt or deficits, Eurozone countries, 2012

Sovereign Debt	Sovereign Debt	Trade Deficits	Fiscal Deficits
Interest Spreads	0.723	0.703	0.555

Lichetta (2009) found that the size and composition of a country's external balance play an important role in the onset of crises from a panel of 40 countries for the period of 1980 – 204, using a random effect probit model. We can say the same thing here in regard to the European sovereign debt crisis. The emerging markets such as Greece and Portugal were more sensitive to external balance than more stable and advanced other European countries.

As Figure 4 indicates, there was a great variation in interest rates before the introduction of euro in 2000. Interest rate spreads among the Eurozone countries converged since introduction of euro, but have diverged since the beginning of the sovereign debt crisis.

Eurozone member countries were considered financially and politically stable by international lenders, regardless of their actual, individual financial circumstances because they are members of a monetary union, using the same currency. International lenders and banks offered funds at low interest rates with no or little variance in interest rates according to country differences. Interest rates in the Eurozone converged to the lower rate that Germany would be charged, instead of the average interest rate prior to euro introduction. However, bailout of Greece and spread of the European sovereign debt crisis to other peripheral countries gave a wakeup call to international lenders and credit rating agencies, and they began to reassess financial soundness of individual countries. The long-term bond rates began to diverge since 2010. In 2012, they range from the lowest rate of 1.83 on German bonds to the highest rate of 19.07 on Greek bonds. We can observe a positive relation between the primary (fiscal) balance and the sovereign debt as the best fitted line in Figure 5 indicates.

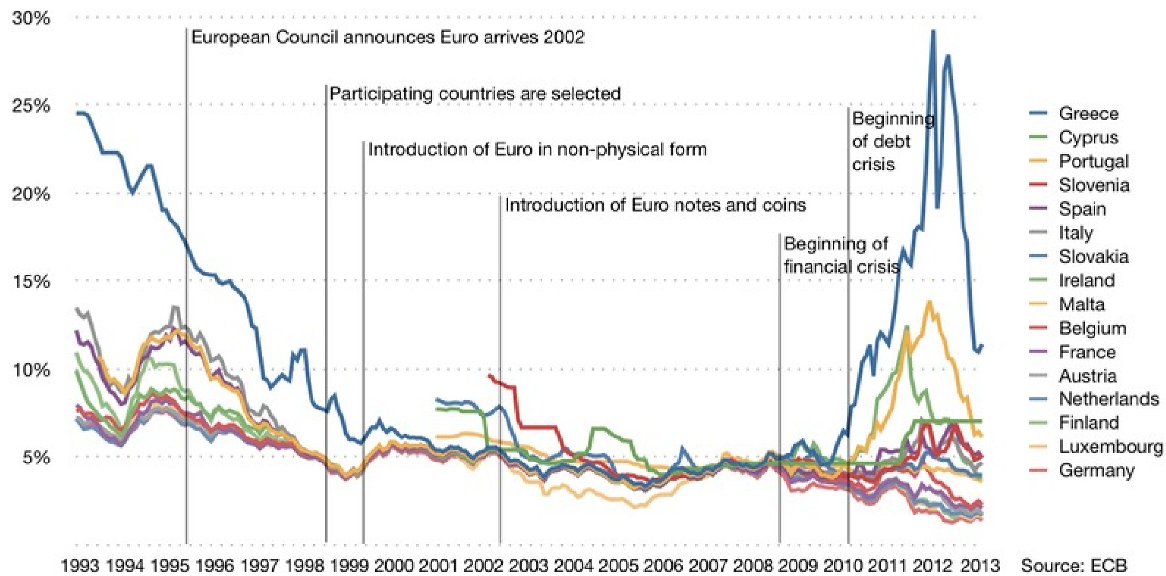

Figure 4. Secondary market yields of government bonds with maturity of 10 years (Source: ECB)

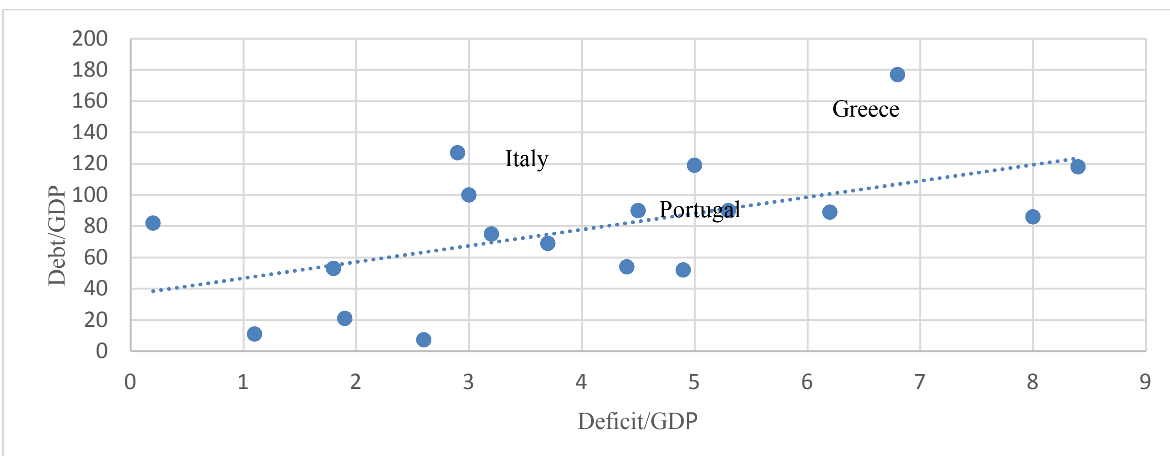

Figure 5. Budget deficits and soveriegn debt (2012)

Parra (2009) analyzed investment banks' perception of sovereign risk through the fee paid by governments to investment banks, that is, the underwriting spread or underwriting fee, to place the bonds on the market. The author found that prior to the onset of the European sovereign debt crisis, investment banks demand a high compensation for their services. After validating his findings in sovereign defaults of Russia in 1998, Ecuador in 1999 and Argentina in 2001, Parra suggested that the fee paid by governments to investment banks to place the bonds as an early warning indicator.

Greenlaw *et al*. (2013) found that countries with sovereign debt above 80 percent of GDP and persistent current account deficits are vulnerable to a rapid fiscal deterioration.

6. Conclusions

Many non-European economists think the Eurozone does not meet the necessary requirement to be an optimum currency area and suggest the disbandment of the Eurozone after the outbreak of the crisis. They point out that a monetary union without central fiscal authority cannot effectively manage the Eurozone economy and respond to the financial crisis or to the downturn of the business cycle. They include Ricci (1997), Feldstein (2012) and Harris (2012). Some suggest a new monetary union by Germany the Netherlands, Austria, Luxembourg, Denmark, Norway, Sweden, Switzerland and Finland. Given economic and political difficulties of total disbandment or forming a new monetary union, many recommends that at least Greece and some other troubled countries unilaterally exit from the Eurozone, default on their debts, regain their fiscal sovereignty, and re-adopt national currencies.

There has been some conjecturing that Greece would exit from the Eurozone unilaterally because Greece would have more freedom in responding to the crisis including currency. However, none of the five crisis-affected countries exit from the Eurozone and there is no sign of disbanding the Eurozone. It is because the involved countries lose more than gain from either national exits or disbandment of the Eurozone. The breakdown of the currency would lead to insolvency of several euro zone countries, causing instability, and the contagion effects and would spread into whole Europe. There is also political determination by Germany and France not to allow the Eurozone to disintegrate.

6.1. Implications for the Eurozone

Three options are possible for the Eurozone: the most radical, the least radical and a compromise between these two. The most radical option is to have much greater economic integration of the Eurozone or even the EU, with surrendering fiscal authority by individual countries. For example, Soros (2011) argues that essential long-term structural changes must be made after immediate arrest of the crisis. His suggestion is to transform the European Financial Stability Fund into a full-fledged European Treasury. A collapse of European Union according to Soros would precipitate an uncontrollable financial meltdown and thus the only way to avert another Great Depression is the formation of a European Treasury. The least radical option is to implement structural adjustment within the current system such as reducing labor costs and removing fiscal fat in the crisis-affected countries. This process of internal devaluation, even though very painful economic adjustment, can restore the competitiveness of an economy. At the same time, governments can increase the competitiveness of the countries through fiscal devaluation by lowering corporate tax burden, while offsetting the loss of government revenues through higher taxes on consumption or value added taxes. As a long-term process, crisis- affected countries need to shift their economies to higher quality products and services.

The compromise between these two options is the proposal made by German Council of Economic Experts. The idea is to mutualize the current debts of all euro-zone economies above 60% of their GDP. Instead of the break-up and issuing new national governments bonds by individual euro-zone governments, any country whose sovereign debt exceeds 60% of GDP would issue only these joint bonds until their national debts fell to the 60% threshold. The new mutualized-bond market, worth in excess of €2 trillion, would be paid off over the next 25 years. Each country would pledge a specified tax such as a VAT surcharge to provide the needed cash. This is a modified approach in the sense that a limited federalization is adopted in order to limit the fiscal integration. In this way, over-indebted countries can have an access to money and banks can have a safe euro-wide class of assets which is not tied to the success or failure of one country. These new euro-wide class assets can be obtained by narrower Eurobond that mutualizes a limited amount of debt for a limited amount of time.

6.2. Implications for East Asian Integration

The Eurozone is the highest level of economic integration so that the experience of the Eurozone may not be directly applicable to other countries. The Eurozone enjoyed lower interest rate during the stable period because of the convergence of the bond rates. However, individual countries could not depreciate or devalue the currency, making it difficult to restore growth and stability. From the European sovereign debt crisis experience, we learned at least a few things. First, when a crisis occurs, it gets worse quickly. Second, the confidence crisis is more serious than sovereign debt sustainability itself. When markets lose confidence in the sustainability of sovereign debts, they tend to do so in a very abrupt and disruptive manner. Investors' fear and loss of confidence in an economy cause contagion effects of crisis, spreading the crisis from one country to another country. The spread of the crisis from Greece to Ireland and then to Portugal, Spain and Cyprus was partly due to their tie to the euro. However, we witnessed the contagion effects in East Asia during the Asian financial crisis of 1997-1998, even though they, in particular, South Korea and Taiwan, are not associated with any types of economic integration at that time. Similar contagion effects were observed in the Latin American crisis in the late 90s and early 2000s.

Third, once a country lose investors' confidence, it proves difficult for it to regain their trust. Lastly, once the crisis happens, it requires much severe austerity measures than placing preventive austerity measures prior to the crisis. Sound macroeconomic policies and maintaining healthy macroeconomic fundamentals including manageable and sustainable fiscal discipline and avoiding excessive external imbalance are essential to prevent the crisis to occur. Especially, the sovereign debt to GDP ratio as well as the private debt to GDP ratio should be confined within the controllable range. Most economies experience long-lasting economic booms as Japan experienced in the 80s and the US and Eurozone experienced in the early 2000s. Consequently, governments get windfall revenues associated with economic booms, in particular, asset price bubbles. Governments need to be aware of the fact that this feature of the growth is not permanent and use such windfall revenues wisely to reduce fiscal deficits, sovereign debt level and increase productivity of the economy.

In the last two decades, countries in East Asia discussed various ways of achieving regional economic and financial integration and have made some progress. As discussed above, some pointed out the inherent structural problem of the Eurozone and suggested the breakup of the euro area. The European sovereign debt crisis made policy makers to think twice about East Asian integration. Should the East Asian countries abandon their regional integration in face of the European crisis? It is not a constructive way to abandon the process for which a lot of efforts have been put by so many countries in the last two decades, just because a monetary union had a crisis. East Asia experienced a financial crisis in 1997-98 with no strong economic and financial integration. A cautious gradual approach may be necessary with reevaluation of benefits and costs associated with higher degree of integration, but abandoning the integration process should not be an option as the Eurozone has no plan of disbandment or breakup of the euro area. We can learn from the European experience and mistakes and improve and reinforce the integration process and system to prevent a similar crisis and setting a crisis resolution mechanism.

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