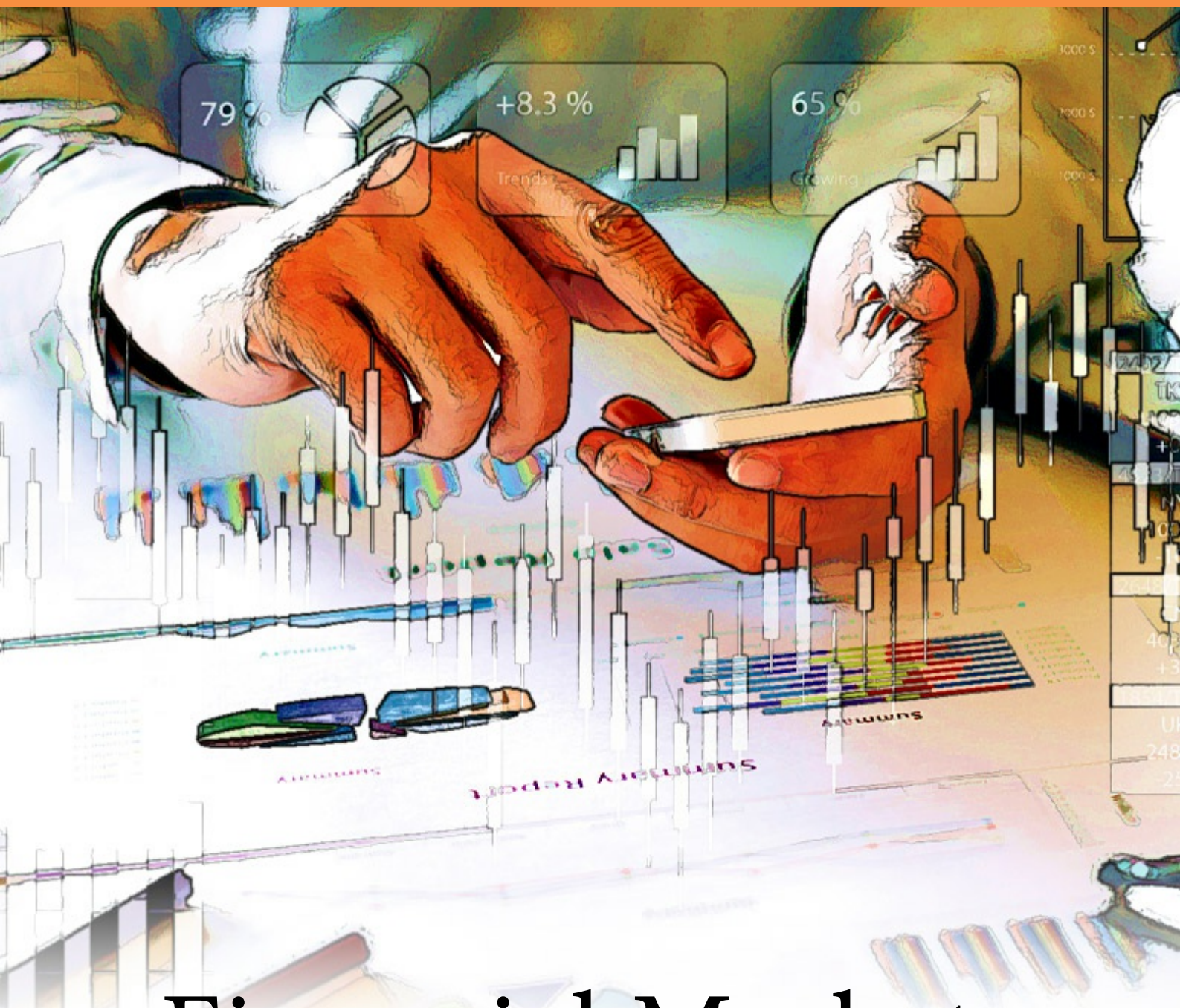

Financial Markets and the Global Economy

John Lodewijks; Mehdi Monadjemi

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FINANCIAL MARKETS AND THE GLOBAL ECONOMY

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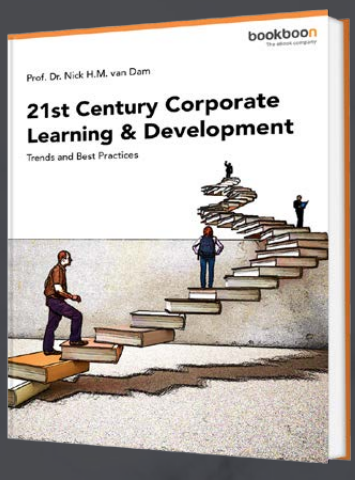

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PREFACE

As we write this, there are ominous signs of global recession in the context of a trade war between the US and China and allegations of currency manipulation by China. This has alarmed US and global financial markets and encouraged the global flight to cash and gold.

The *East Asia Forum Digest* of 26 August 2019 writes the following:

> There has been an assault on the multilateral economic institutions and rules that have provided the foundations for global growth. The strength of the North American economy, including its technological vibrancy, the growth of Europe and the lifting of hundreds of millions of people out of poverty, most notably in Asia, have all depended in crucial ways on that system — and still they do. The free flow of trade, investment, and ideas has supported the emergence of a growing middle class around the world. The return to unilateralism and disregard for established processes affect investor confidence and drag down trade and growth. The IMF and other international agencies are now revising growth forecasts downwards. Last year, the volatility of the global economy and many currencies, decreased international capital flows and increased uncertainties in global trade. This year, the global economic situation continues to deteriorate and the uncertainties are growing. These uncertainties create downside risks to the global economy and increase financial market volatility. Economic activity is weakening. Trade and manufacturing activities are slowing. Growth remains low and the risks are all downside, significantly because of trade uncertainty. The hit to global trade continues to dampen investment and business sentiment and lower productivity.

This book is written with these dangerous developments in mind. Like our last book, this is much more the work of the senior author, given his extensive experience in central banks and financial institutions.

This book is dedicated to Associate Professor Geoffrey Herbert Waugh (22.08.1944 – 21.07.2019). Geoff had retired from the University of New South Wales in 2004. We were deeply saddened to hear of his passing. He was our colleague and friend. He was twice the recipient of the Vice Chancellors Award for Teaching Excellence at UNSW (1990, 1995) and the Australian University Teacher of the Year in 1999. We miss you Geoff!

M.M & J.L

September 2019

1 MONEY AND MONETARY POLICY IN THE GLOBAL ECONOMY

Money and finance are key elements of our global economy. What constitutes "money" and how that has evolved over time is an interesting topic, particularly with predictions of a cashless society emerging. Similarly, financial instruments have been transformed through financial engineering with some notable observers, such as Warren Buffett, alleging that rather than facilitating international trade and finance they have created weapons of mass destruction and financial fragility. In this chapter we focus specifically on the role of central banks in the world monetary order.

1.1 EVOLUTION OF THE MONETARY POLICY

Monetary policy is designed to influence prices, output and employment and the exchange rate. This policy is conducted by the central bank, until recently, though variation of the quantity of money in circulation or the interest rates.

Monetary policy evolved from having no role according to the classical economists to be the most powerful tool for controlling inflation in the 1970s and early 1980s.

The effects monetary policy on output and the price level has been subject of extensive debate in economics. Classical economists such as Adam Smith, David Ricardo and David Hume believed that in free capitalist system wage, price and interest rate flexibility moves the economy towards full employment. For example, a fall in aggregate demand causing price level to fall, real wage will increase leading to unemployment. As a result of unemployment money wages fall proportional to price level, maintaining the initial real wage and employment. In this system, there is no role for government intervention to stabilize the economy. Economic instabilities are temporary, mainly due to wages and price flexibility. In the classical economic system, because of automatic stabilization, there was no role for monetary and fiscal policy.

The Great Depression of 1930s proved that the labour market can suffer from unemployment for a long period of time. The depression lasted longer than a decade and unemployment in some regions remained around 25 percent. The wage and price flexibility without government intervention was absent. The classical theory of wage and price flexibility and full employment was not supported.

In 1936 John Maynard Keynes in *General Theory of Employment Interest and Money* argued that government intervention is required to compensate for the fall in aggregate demand. Keynes emphasized the use of fiscal rather than monetary policy in recession. He showed that in deep recession when interest rates are very low, monetary policy cannot stimulate the aggregate demand. He reasoned that with a liquidity trap which occurs at a very low rate of interest, people prefer to hold liquidity. In this situation, any expansion of the money supply will be held in liquid form rather than being spent to purchase goods and services. Furthermore, Keynes argued that in addition to the existence of the liquidity trap, the interest elasticity of investment demand is low. Accordingly, in deep recession monetary policy is incapable of increasing production and employment.

Fiscal policy was successful in promoting growth and reducing unemployment in 1940s, 1950s and the 1960s when inflation was not a serious problem. Significant oil price increase by the OPEC in the 1970s, from 2 dollars per barrel to 11 dollars, caused inflation and unemployment in the industrial countries. Fiscal policy is not effective when there are unemployment and inflation simultaneously. An increase in aggregate demand for increasing output and employment causes further increase in prices.

Milton Friedman emphasised the effects of monetary policy for controlling inflation. Friedman and Schwartz (1963) demonstrated a high correlation between money and prices in the United States for 100 years.

Following Friedman's suggestions, Monetary targeting was introduced by several countries including US, UK, Canada, Australia and New Zealand for reducing inflation. Monetary targeting was successful to reduce inflation in the countries where it was exercised, at the expense of increasing unemployment. In two separate studies, Friedman (1968) and Phelps (1968), in the context of adaptive expectations, showed that an expansionary monetary is effective in the short run to reduce unemployment but increases inflation. In the long run unemployment adjusts to the natural rate and inflation remains at a higher level. Accordingly, in the long run monetary policy is ineffective to reduce unemployment.

Monetary policy ineffectiveness was advocated by those who supported rational expectations. The rational expectations hypothesis assumes that the private sector cab fully anticipate the outcome of government policies and reacts to offset the effects of such policies. Only unanticipated policies can affect output and employment. For example, the central bank attempts to increase the money supply for boosting the economy. The private sector anticipates that prices will rise. They demand higher money wages causing real wages and employment to remain unchanged. Under rational expectations monetary policy is ineffective in influencing economic activity.

During the 1960s there was an extensive debate between Monetarists and Keynesians over implementation of monetary and fiscal policy. Friedman (1948) argued that monetary policy affects the economy with long and unpredictable lags. The central banks do not have accurate knowledge about the duration of the lags. At the time of conducting discretionary policy, they may intensify the height and depth of a cycle rather than eliminating the existing ones. Friedman preferred rules over discretion. For instance, a constant growth of the money supply that is in line with the rate of growth of the economy.

Kydland and Prescott (1977) considered the choice between discretionary policy and fixed rules under the assumption of rational expectations. Their study demonstrated that exercising monetary policy with a rule leaves the society at the optimum level of unemployment and inflation whereas, a discretionary policy increases inflation leaving unemployment unchanged. This recommendation is similar to Phelps (1968) and Friedman (1968) where in the long run a discretionary increase in money supply policy increases inflation without affecting unemployment. The difference between two studies is the Kydland and Prescott's research suggests that monetary policy based on a rule leaves both unemployment and inflation at zero percent. The idea of conducting monetary policy based on a rule was implemented in several countries under so called monetary targeting. The strategy of monetary targeting requires authorities to set a target for the growth of monetary aggregates based on their economic objectives This procedure was exercised in several countries.

Monetary targeting created problems for those countries that followed this strategy. Deregulation and financial innovation led to instability in the relationship between money and economic activity. This development caused monetary aggregates to give wrong signals about the state of the economy, preventing authorities to predict the effects of their policy on the economy.

The next monetary policy strategy was inflation targeting where the central bank set a tolerance range for inflation, for example, 2 to 3 percent. If the actual rate inflation exceeds the target range, the central bank increases increase interest rates to maintain the inflation in the desired range.

The financial crisis of 2007 – 2008 caused severe recession in the affected countries. The interest rates in those counties declined to near zero. However, output and employment remained depressed. The situation was reminiscent of the Keynesian liquidity trap where monetary policy was ineffective at the very low rate of interest. Japan's economy was trapped in the same situation in the 1990s. With interest rates almost zero the, Bank of Japan chose an unconventional approach to monetary policy.

There are two categories of unconventional monetary policy; asset purchases (AP) and forward guidance (FG). During crises government securities tend to become bid up due to their perceived safety, which restricts their usefulness as a policy tool. In place of purchasing government securities, the central bank can purchase other securities, such as mortgage backed securities, in the open market outside of government bonds. This is often referred to quantitative easing (QE). Most of the central banks of affected countries exercised QE during financial crises of 2007 -2008.

The Economist (2013) maintains that QE was effective in reducing the long-term rate of interest in the affected countries. FG is related to the transparency of the future policies of the central bank. Through FG the Bank of Japan in the late 1990s, the Federal Reserve Bank in the US and the Bank of England during the financial crises in 2008, attempted to persuade the markets that as long as there is no fear of inflation, they will maintain the zero rate of interest.

The Economist (2013) argues that QE caused outputs in Britain and United States to increase by 2 – 3 percent. Those economists who believe in the existence of the liquidity trap during the 2007 – 2008 financial crises, argue that at the zero rate of interest both conventional and unconventional monetary policy are ineffective. They recommend fiscal policy together with monetary expansion and lower interest rates for increasing output and employment.

1.2 THE ROLE OF THE CENTRAL BANK

Monetary policy is conducted by the central bank. In addition to the implementation of monetary policy, central banks also perform the following functions:

Custodian of nation's gold and foreign exchange reserves;

Banker of the government;

Holding banks' reserves;

Issue notes in circulation

One of the most important roles of the central bank is implementation of monetary policy through changing the monetary base or setting interest rates. The monetary base (MB) is defined as Cash in circulation plus reserves of banks at the central bank.

The following simplified balance sheet of the central bank, taken from Monadjemi and Lodewijks(2015), shows the sources of change in monetary base and money supply.

Assts	Liabilities
Gold and Foreign Exchange Reserves GFX	Currency (notes) in circulation C
Government Security GS	Commercial banks' Reserves BR
Bank Loans BL	Government Account GA
Other Assets OA	Other Liabilities OL
	Net Worth NW

Table 1.1 Simplified Balance Sheet of the Central Bank

Two sides of the balance sheet must be equal. Accordingly, identity 1 can be written:

$$GFX + GB + BL \equiv C + BR + GA + (OL - OA + NW) \quad (1)$$

Or

$$C + BR \equiv GFX + GB + BL - GA \quad (1)'$$

For our purpose OL – OA + NW are not important and usually they are not large. For this reason the sum has been dropped from identity 1'. In 1' C + BR is monetary base (MB) or high powered money. Changes in the items on the right-hand side of 1' cause changes in MB.

MB and MS can change through central bank open market operations (purchase or sales of government securities GS), central bank intervention in the foreign exchange market (GFX),financing of government budget deficits by borrowing from the central bank (GA) and bank loans (BL).

The central bank cannot set both money supply and interest rates together. They face a choise between targeting money or the interest rate. Poole (1970) showed that given the objective of minimizing deviation of output, monetary targeting is optimal when shocks come from the real sector and interest rate targeting is preferable when disturbances originate from the financial sector.

Monadjemi and Lodewijks (2014) note that setting interest rate to keep inflation target was a popular strategy for monetary policy in developed countries during the decade of 1990s.This strategy was known as inflation targeting. The strategy for implementing monetary policy in the 1970s, 1980s and the 1990 respectively changed from monetary targeting, exchange rate targeting and inflation targeting and central bank independence. It is interesting to note that the change in the strategy occurred at the same time in each countries that followed one the above monetary policy strategies. After the breakdown of monetary targeting in late 1970s, several countries moved to exchange rate targeting. Stability of the exchange rate is important for those countries where international trade is a significant part of their economic activity. The most famous exchange rate targeting is the European Monetary system (EMS). The EMS was a fixed exchange rate system where eight European counties decided to maintain their exchange rate against the German Mark unchanged. This system was successful to keep the inflation of EMS members' at very low level, close to Germany's inflation rate.

Monadjemi et al (2013) pointed out that in the 1990s, countries such as Australia, Brazil, Britain, Canada, Chile, Norway, South Africa, Korea, and New Zealand conducted monetary policy based on inflation targeting. In inflation targeting, the central bank sets interest rate such that the expected rate of inflation remains within a target range. Inflation was controlled in those countries that pursued inflation targeting.

The emphasis on price stability rather than growth and employment was recommended in Rogoff (1985). Rogoff argued that the society is better-off if the objective of the central bank is different than the objective of the society. In other words, the society needs a conservative

central banker whose objective function weights the price stability more than employment. Monetary policy decisions made by a conservative central bank should be independent of government policies that prefer expansion of output and employment.

Monadjemi et al (2013) argued that an independent central bank avoids conducting monetary policy based on politically motivated economic policy of the government. Germany (before introduction of the euro), Japan and Switzerland had the lowest inflation in the world and their central banks were the most independent. New Zealand is the classic example of the relationship between central bank independence and low inflation. During 1955-1988 the annual average rate of inflation in New Zealand was 7.6 percent and monetary policy was influenced by the economic objectives of the government. In 1988, legislations were passed that required the independence of the central bank for maintenance of low inflation. The average rate of inflation during 1989 – 2000 dropped to 2.7 percent per year.

The independence of the central bank helps to maintain low inflation because government's economic objectives tend to expand output and employment financed by borrowing from the central bank (printing money) which contributed to inflation. Accordingly, an independent central banker can conduct monetary policy to control inflation irrespective of the economic objectives of the government.

Alesina and Summers (1980) discussed the relationship between central bank independence, inflation, growth and employment in 16 OECD countries. The authors identified political independence and economic independence. The political independence was the power of the central bank to pursue monetary policy independently without consulting the government. Economic independence is defined to as the ability of the government to finance its expenditure by borrowing from the central bank. When government borrows from the central bank, printing money, the monetary base rises and reduces control of the central bank over price stability. Alesina and Summers' empirical results showed a negative relationship between inflation rate and the index of central bank independence.

The global financial crises of 2007-2008, caused wide-spread recession and high unemployment, in the affected countries and other regions. The persistence and the severity of the recession was such that became known as the "Great Recession". Some economists argued that emphasis on central bank independence and maintenance of prolong low inflation and low interest rates contributed to the sub-prime mortgage crises in 2007 – 2008.

Discretionary fiscal policy and stimulus packages came back in favour to resuscitate stagnate economies.

We now move the discussion to global capital movements and the impact that has on macroeconomic management.

1.3 INTERNATIONAL CAPITAL MOBILITY (ICM)

The following discussion is based on Monadjemi and Lodewijks (2015). ICM has become a popular topic since deregulation of financial market and larger and faster mobility of capital across borders. Several economists maintain that closer linkage of international capital markets has been a major factor in 2007 – 2008 global financial crises.

There are several measures for testing ICM. Initially, Feldstein and Horioka (FH) (1980) and Feldstein (1983) argued that in a closed economy saving and investment are perfectly correlated. In an open economy with international capital movement, the correlation between saving and investment declines. FHs proposal is an indirect method for testing ICM and it has been criticised on several grounds. A better measurement for capital mobility is covered or uncovered interest parity condition.

If capital is perfectly mobile, domestic and foreign interest rates are identical. In this case, given interest parity condition (ICP)[1], expected change in the exchange rate is equal to zero. Interest rates in advanced economies such as US and Western Europe are much closer because of little differences between risk of bankruptcy, inflation and liquidity.

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The following equation is the uncovered interest parity with risk premium. The risk premium represents differences between domestic and foreign assets due to other risks besides the risk of foreign exchange rate changes.

$r - r^* = (e^e - e)/e + \rho$ where $\rho, r, r^*, e^e,$ *and* $e,$ are all of the risk associated with the domestic currency assets, domestic rate of interest, foreign interest rate, expected change in the exchange rate and the exchange rate respectively. In this form, domestic interest rates have to compensate for expected depreciation of domestic currency as well as other risks associated with holding domestic assets.

Since most of the borrowings and lending transactions continue in the future, expected inflation has to be taken into consideration. Accordingly, real rather than nominal interest rates are more appropriate in financial transactions. Real interest rates are nominal rates less expected inflation. Domestic and foreign real interest rates are presented in (1.1) and (1.2) respectively.

$$R = r - \pi^e \tag{1.1}$$

$$R^* = r^* - \pi^{e*} \tag{1.2}$$

Where R and π^e are real interest rate and expected inflation and those with * represent foreign variables. The difference between domestic and foreign real interest rate becomes criterion for movements of capital.

1.4 MACROECONOMIC STABILIZATION IN EUROPEAN MONETARY UNION

Monadjemi and Lodewijks (2014) argued that the Global Financial Crisis (GFC) had a devastating impact on many EMU member countries and resulted in growing public and private sector indebtedness, the collapse of economic activity, high levels of unemployment, particularly for youth, and the threat of deflation. The ECB's decision to reduce its main refinancing rate in June 2014 from 0.25% to 0.15% was accompanied by the deposit rate on excess reserves also being reduced by 0.10% (from 0% to -0.10%). The tax on excess reserves represents an attempt to avoid deflation in the Eurozone by promoting bank lending. Furthermore, as austerity measures were implemented in the UK, Ireland, Spain, Italy, Greece, Portugal and France, the results have been associated with high unemployment and rising social tensions. The strategy of internal devaluation has been employed as the traditional approach of restoring competitiveness through currency devaluation is no longer available. Currency devaluations cut the purchasing power of consumers by making the

national currency weaker and thus foreign goods more expensive. This has the virtue of increasing consumption of domestically produced goods, while making exports cheaper. This option is no longer available as national currencies have disappeared. So, they are left with internal devaluations by cutting wages across the board. While internal devaluations have contributed to reduced current account deficits this has resulted from repressed domestic demand, due to wage cuts and increased unemployment, which has led to a collapse in import spending. Further, an internal devaluation exacerbates the burdens of servicing private debt and further dampens any hope of a recovery in private demand as the income of consumers has been reduced.

Not surprisingly, the design of the EMU has been subject to intense scrutiny. The chief challenge to such a monetary union was the different levels of productivity between the higher productivity of the older member states of the West and the newer, lower productivity members from the East. The presence of asymmetric shocks was also a key problem. Furthermore, within the Eurozone, the centralisation of monetary policy condoned housing bubbles in Spain and Ireland prior to the GFC. The strategy of internal devaluation, combined with budgetary austerity, has had a strong negative impact in terms of growth and employment throughout Europe and led to the near collapse of Europe's 'Social Model' (balancing unrestrained market forces by a 'social dimension') with social safety nets disappearing or severely reduced.

Increased doubts are being expressed about the conventional view of a low inflation strategy, Blanchard et al. (2010) made an important observation that higher average inflation and higher nominal interest rates to start with, would have helped to lower interest rates more, thereby most likely reducing the decline in output and deterioration of fiscal positions in the aftermath of global crisis. This reservation against the low inflation strategy has been shared by leading economists such as Kenneth Rogoff, Greg Mankiw, Paul Krugman, and Brad DeLong.

Some observers are even suggesting that countries need to restore their policy sovereignty. This inevitably involves exiting the EMU and reinstating a fiat (non-convertible) currency, a flexible exchange rate regime and monetary independence. Whether such a radical strategy ensues, it does suggest quite clearly that a monetary union with a singular focus on inflation targeting can achieve inflation control, but this is clearly not a sufficient condition for macroeconomic stabilization.

It is not apparent that we have solved issues of global financial instability or economic stagnation. Interest rates are exceedingly low (if not negative) yet there appears no resurgence of inflation or rebound in economic activity. These developments are not helped with trade wars between the major global powers and Brexit considerations. Central bank worries about impending inflation appear unwarranted. Yet despite heralded advances in information technology and machine learning, the effects on productivity and growth are not obviously apparent. On the other hand, debt levels of both governments and individuals appear to be at excessive levels suggesting a coming reckoning. We live in interesting times.

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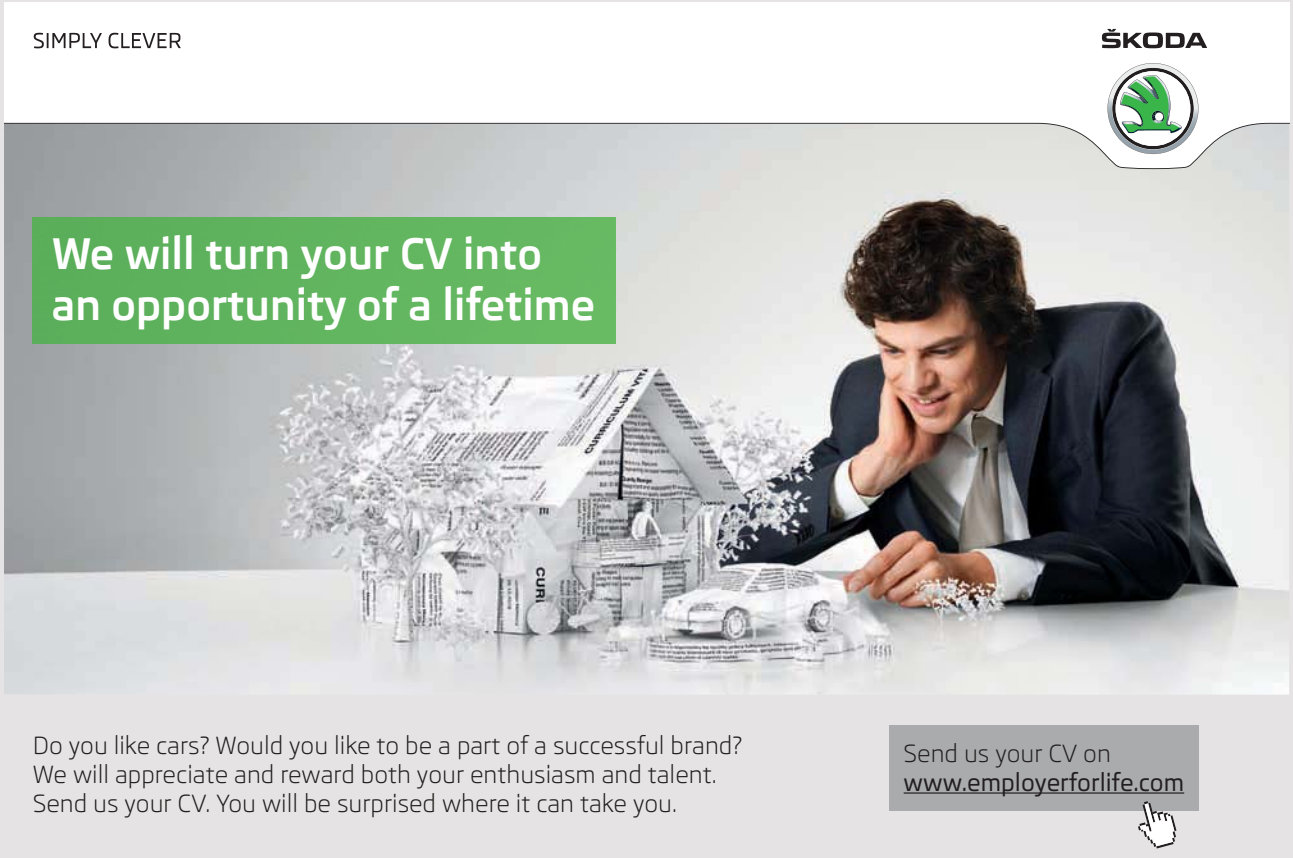

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2 FREE TRADE OR TRADE RESTRICTION

Introduction

This is a very old topic in economics going back to Adam Smith, mercantilism and David Hume. The main body of analysis called, comparative advantage (CA), was developed by David Ricardo in the mid-18th century. According to Ricardo, specialization and free trade are mutually beneficial to all parties involved.

The debate on free movements of goods and factors of production versus imposition of restrictions is not new in the literature. However, recently these issues have gained importance, particularly in Europe, United States and China. Immigration is a challenging problem for the European governments and the imposition of tariffs and trade war between China, and the United States is threatening world's economic growth and prosperity.

Ricardo's theory of free trade is not based on the absolute advantage but on comparative advantage. A country may have absolute advantage in production of many products but a comparative advantage in production of a few. This country should specialize in production of those goods with CA and export them and import the other goods with no CA. Ricardo showed that after trade both countries will be better-off. The theory of CA is based on efficiency in use of resources. For example, if China uses fewer resource for production of one unit of cloth and US uses fewer resources for production of food, then US should export food and import cloth. China imports food and exports cloths to US.

There are several assumptions and critics of the CA. It assumes that labour productivity is the only determinant of CA and production is subject to constant return to scale. These assumptions are questionable. In real world, a combination of labour, capital, land and natural resources is important in production of goods and services. In addition, the technology, and know-how of how to use resources in production affect competitiveness of countries in international trade. In other words, CA advantage depends on abundance of various resources and the level of technology, which influences the intensity of resources in production. For example, Japanese automobile industry is internationally competitive, mainly because of the technology and capital equipment in their car industry. One the other hand, China is successful in textile because of labour abundance and labour intensity of textile manufacturing.

The importance of factor abundance and factor intensity was introduced by two Swedish economists Heckscher and Ohlin in 1933. However, the principle remains valid even today. The world will be better-off with free movements of goods and resources than imposing restrictions. The principles of free trade are being challenged today as President Trump instead has spruiked the benefits of his tariffs to the US economy, a boast at odds with the verdict of almost all economic experts who say the imposts have led to overall price increases for consumers and cost jobs. As we write this chapter a new 25 percent US tariff hike on US$200 billion ($286 billion) Chinese imports came into force. These companies paying the higher tariffs have largely passed on the cost to American consumers. Some experts say it could add up to $US2500 to the price of a car, for example. Smartphones, clothing, shoes, sporting goods, toys will all go up in price and consumers will clearly notice the higher prices.

2.1 SOME STATISTICAL TRENDS

In Table 2.1 the trend of World's merchandise exports since 1948 and the shares of four major exporters are presented. The value of World's merchandise trade has increased significantly mainly after 1973 and in the later parts of 2000s. Furthermore, four major exporters, except for the United States, increased their share of world's exports over time.

	1948	1953	1963	1973	1983	1993	2003	2017
World	**59**	**84**	**157**	**579**	**1838**	**3688**	**7379**	**17196**
US	13	13.9	11.4	12.4	14.3	15.9	16.9	13.7
Germany	2.2	4.5	8.0	9.2	8.1	9.0	7.9	6.6
China	0.6	1.6	0.9	0.9	1.1	2.7	5.4	10.5
Japan	1.1	2.8	4.1	6.5	6.7	6.4	5.0	3.8

Table 2.1 World Merchandise Exports in selected Countries billions of US dollars and percentages

This table was taken from World Trade Statistical Review 2018, Table A4. The bold figures are in billions of US dollar, The rest of the entries are shares of each country from the world merchandise exports.

	2010-2017	2016	2017	2010-2017	2016	2017
World	**3.0**	**1.6**	**4.5**	3.1	2.0	4.8
US	**2.8**	**-0.2**	**4.1**	3.3	0.1	4.1
EU(28)	**2.5**	**1.1**	**3.4**	1.8	3.1	2.5
China	**5.0**	**2.7**	**6.4**	4.9	3.7	8.8
Japan	**0.4**	**2.3**	**5.4**	2.3	0.8	2.8

Table 2.2 Growth in Volume of World Merchandise Exports and Imports

This table was taken from World Trade Statistical Review 2018, Table A2. Bold figures are growth of exports, the rest are growth of imports.

Table 2.2 sheds light further to the rising international trade. Except for 2016, growth of both exports and imports accelerated in 2017 for the world and selected countries. Both tables indicate growth of free trade signalled by the growth of merchandise trade.

These developments are the results of the trend on globalization and international capital mobility which started in late 1970s and accelerated in the 1990s and 2000s. The China-US trade war is a backward steep in the global integration process.

2.2 TRADE BARRIERS AND PROTECTIONS

The most common measures of trade barriers are tariffs and quotas and subsidies. All of these measures attempt to protect domestic producers against foreign competition. The effects of tariffs and quotas on domestic producers and consumers are similar. Domestic producers gain, consumers lose, both because of higher prices of imports and import substitutes. In case of tariffs, the government obtains revenue, whereas in case of quotas, quota holders receive extra revenue.

Overall, the society is worse-off after introduction of trade barriers. The loss of consumers is so high that it more than off sets, the gain received by other sectors. This is the strongest argument against the trade barriers and in favour of free trade.

Another form of trade barrier is export subsidies where exporters are subsidized by the government an amount equal to the quantity of exports multiplied by a price which is above the world price. Domestic producers gain because they receive the subsidy. Consumers loose because they pay higher prices. The government loses since it pays the subsidy. The net welfare effects of export subsidy are negative. Furthermore, loses occur because the price in the importing country falls and the government must pay the additional subsidy to domestic producers. All three trade barriers unambiguously create deadweight loss for the society. The only justifiable trade barrier is in case of infant industry where domestic producers are not well developed to compete internationally. Additionally, subsidies may be used strategically to drive competitors from other nations out of business. This is often called strategic trade policy.

Below, a graphical exposition of the effects of tariffs is presented in Figure 2.1.

Assume a small economy that takes the world price of a commodity as given. The introduction a tariff on imported goods increases the word price to $p_w{}'$, where p_w is the world price.

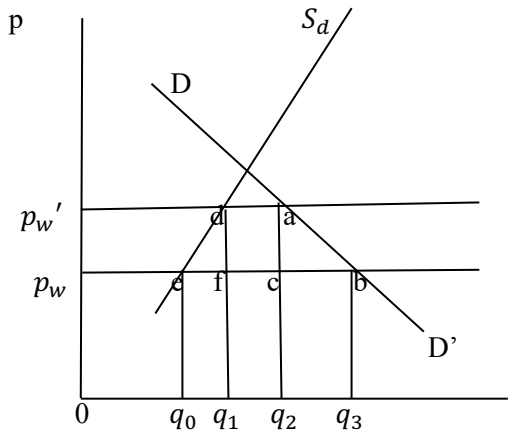


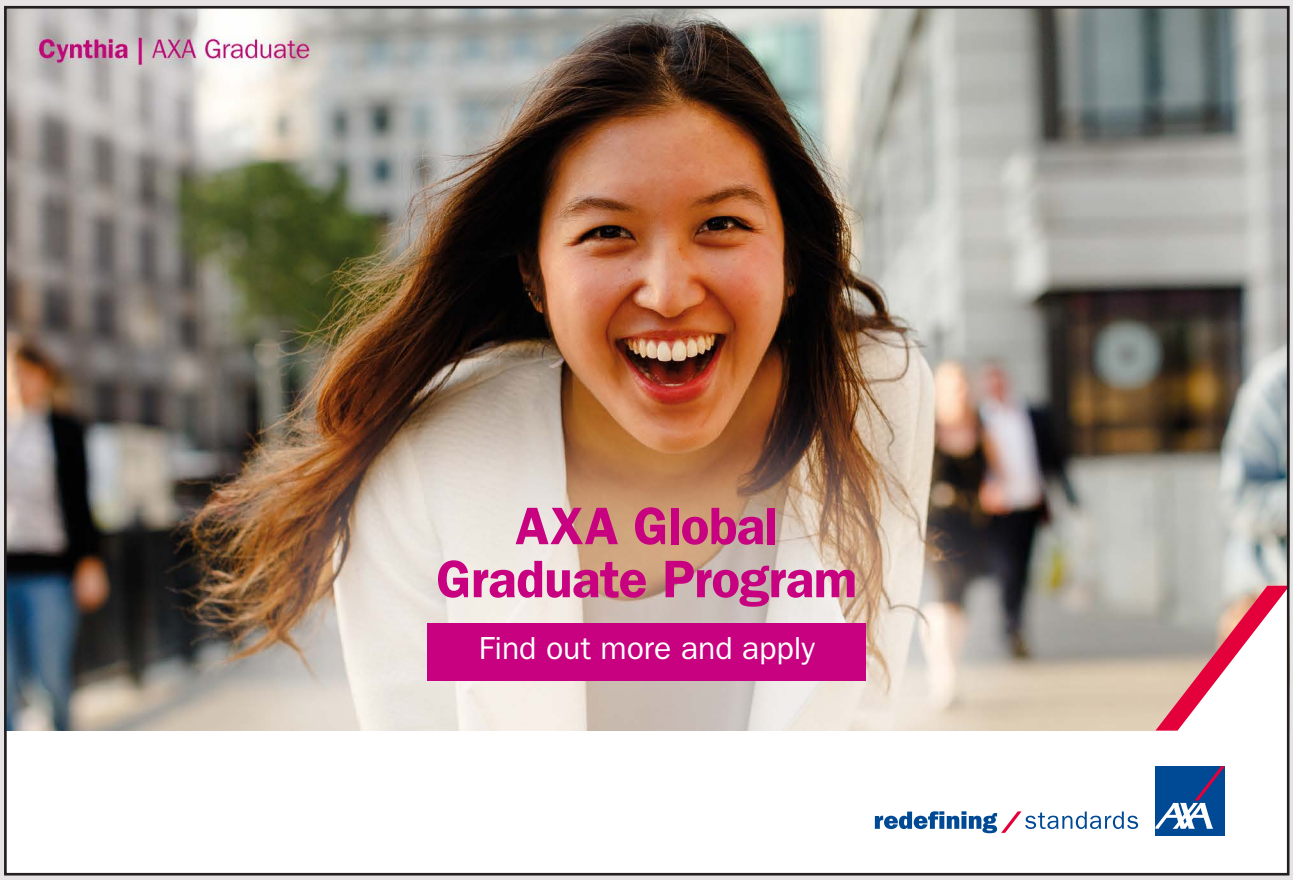
Figure 2.1 The Effects of Tariffs

In Figure 2.1, DD' and S_d are domestic demand and supply respectively. Initially, the quantity of imports is $q_0\, q_3$. After the imposition of a tariff, imports fall $q_1\, q_2$, to As a result of a tariff consumer surplus is reduced by $p_w\ p_w'ab$, domestic producers' surplus increases by $p_w\, p_w'de$ and the government revenue rises by fdac.The total areas of two triangles edf and cab are called deadweight losses of tariff. The loss of consumer surplus exceeds the gains by government and domestic suppliers.

Similar losses occur when quotas are introduced.

2.3 CUSTOM UNION AND MONETARY UNION

The European community (EC), formed initially, aimed at creation of a custom union where free movements of labour, capital and goods without any restriction were allowed. The original six members of the EC were Belgium, Luxemburg, France, Italy, The Netherlands and Germany. Subsequently, EU was established when the United Kingdom, Iceland, Denmark, Greece, Spain and Portugal joined the union. The European Union (EU) which was formed in 1957 recommended heavy subsidies for agriculture. The EU was mainly based on trade emphasising the removal of trade barriers between the member states but it protected locaql agriculture from foreign competition. It also promoted exports by heavy



subsidies of agriculture. The EU supported agricultural prices by purchasing excess supply of products whenever prices started falling below a pre-specified level. The price support was introduced to prevent farmer's falling revenues. However, the support price was set so high that it caused accumulation of large quantities of agricultural product by the EU. Subsequently the export subsidies were introduced to dispose of large quantities of unsold agricultural products. Furthermore, because of low agricultural prices, non-European food producers such as United States objected to the export subsidy program of the EU and demanded a total ending of the program. Eventually, the EU agreed to gradual reduction of the subsidies over six years. Krugman Obstfeld (2003) argues that the cost of export subsidies exceeded its benefits for the participating nations.

A monetary union is a custom union that operates with a single currency and a uniform monetary policy. The followings are economic criterion for entry of EU countries into the European Monetary Union (EMU):

1. Maximum budget deficit of 3 percent of GDP
2. Maximum government debt of 60 percent of GDP
3. Inflation not exceeding by more than 1.5 percent of the average of the three lowest inflation countries in the union.
4. Long-term interest rate not exceeding more than 3 percent of the average interest rate of the three lowest inflation rates in the union.

These requirements allow potential members to enter the union with a stable and uniform economic condition. Currently, the EMU has 19 members. An additional seven members were admitted under the EMU stage 3.[2] United Kingdom, Denmark and Sweden decided to remain in the EU but not to enter the EMU. The last row in Table 2.3 are convergence criterion. Greece was the only country that did not meet three requirements. However, Greece was allowed to enter in 2001 based on making satisfactory progress for meeting the requirements although it was later alleged that they used global accounting firms to fudge the entry numbers.

Country	Inflation %	Budget Deficit % of GDP	Public Debt % of GDP	Long Term Interest Rate %
Austria	1.1	2.3	64.7	5.6
Belgium	1.4	1.7	118.1	5.7
Denmark	1.9	-1.1	59.5	6.2
Finland	1.3	-0.3	53.6	5.9
France	1.2	2.9	58.1	5.5
Germany	1.4	2.5	61.2	5.6
Greece	5.2	2.2	107.7	9.8
Ireland	1.2	-1.1	59.5	6.2
Italy	1.8	2.5	118.1	6.7
Luxemburg	1.4	-1.0	7.1	5.6
Netherlands	1.8	1.6	70.0	5.5
Portugal	1.8	2.2	60.0	6.2
Spain	1.8	2.2	67.4	6.3
Sweden	1.9	0.5	74.1	6.5
United Kingdom	1.8	0.6	52.3	7.0
Convergence Criterion	2.7	3.0	60.0	7.8

Table 2.3 Economic indicators of Maastricht Treaty Convergence Criterion March 1998

This table was collected from Monadjemi and Lodewijks (2015)

2.4 FREE TRADE AREA

A free-trade area consists of a group of countries that within the area, have no-trade barriers in the form of tariffs or quotas. Free trade areas allow the member nations to specialize in production of goods with comparative advantage. Specialization leads to increasing the efficiency and profitability for participating countries. One of the most well-known and largest free trade areas is the European Union. There are no barriers to labour, capital and good movements between 27 members of the union. Developments of the European Union were already discussed earlier.

The second largest free trade area is the North American Free Trade Agreement (NAFTA), established in 1991. The agreement between Canada, the United States and Mexico promoted free-trade between three North American countries. This agreement has also come under threat from the US President recently.

To form a free-trade area, participating nations must develop guidelines and regulations for the operation of the new free trade area. What kind of procedures for customs should each country follow? How will participating countries settle trade disputes? How are goods transported for trade between member counties? How will intellectual property rights be treated? The goal of the agreement is to establish a trade policy that all countries in the area agree with to guide trade with each other.

Consumers benefit from free trade agreement because they can purchase a larger variety of goods at cheaper price and perhaps better quality. Domestic producers may be harmed by increased competition, but they may also have access to a larger market with customers. Workers in some import competing industries may lose jobs. Free trade areas can also promote economic development as living standards in the member countries improves.

The US free-trade agreement with Latin American countries includes the Dominican Republic, Costa Rica, El Salvador, Nicaragua, Honduras and Guatemala. The United States also has free trade agreements with Australia, Bahrain, Chile, Colombia, Panama, Peru, Singapore, Israel, Jordan, Korea, Oman and Morocco. The United States recently withdrew from the Trans-Pacific Partnership (TPP). The United States has also been negotiating a European trade agreement, called the Transatlantic Trade and Investment Partnership (T-TIP), with the objective of shaping a "high-standard, broad-based regional pact" according to the Office of US Trade Representative.

2.5 ADVANTAGES AND DISADVANTAGES OF FREE TRADE

Advantages

1. **It helps consumers with wider choices and lower prices.** With larger quantities of imports, more goods are available for consumers and also, international competition forces prices to be lower.
2. **It allows countries to specialize in production of goods that they have the comparative advantage.** Countries that have low comparative costs to produce certain products will enjoy a competitive advantage to specialize in such goods and be their only suppliers in other countries. In return, the purchasing countries can also benefit from the low prices of these imported products. Therefore, it is a win-win situation for both trading nations.

3. **It is a source of economic growth.** Specialization increases productivity and contributes to higher economic growth. More consumer spending due to larger availability of goods and lower prices leads to higher production of goods and services.

Disadvantages

1. **Local producers are harmed as a result of foreign competition.** Opponents argue that free trade without tariffs reduces prices of domestically produced import substitutes causing lower revenue for local producers.
2. **It harms domestic labourers**. Local workers are forced to accept lower wages and inferior working condition in order to keep their jobs.
3. **Free movement of labour leads to unemployment.** It is argued that cheaper foreign workers replace domestic labourers causing higher national unemployment.

   The current US President believes the disadvantages outweigh the positives. Most economists think the opposite.

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3. Monadjemi, M and Lodewijks, J. "Monetary Union without a Political Union: Implication for the European Monetary Union", *International Journal of Business and Social Science,* (2015), 2, (8). pp.70 -79.

3 FOREIGN EXCHANGE MARKETS

Foreign exchange (FX) markets are the largest financial markets in the world. Globally, FX markets operate and trade 24 hours. They start in Asia and Southern Hemisphere, followed by Europe and then North America. The exchange rate changes are very rapid and may result in large gains or losses, depending on the amount, for the speculators. The exporters and importers usually attempt to protect themselves against the FX rate fluctuations by purchasing or selling domestic currencies in the forward markets. The exchange rate system in most of the developed countries is a managed float, where the exchange rate is market determined with occasional intervention by the government, to prevent excessive fluctuations. In many developing countries, the exchange rate is fixed by the central bank. The fixed exchange rate system can survive if the central bank has sufficient foreign exchange reserves to protect the fixed rate. Occasional devaluation and over-valuation occur under the fixed exchange rate regimes.

In this chapter, the floating exchange rate, the fixed exchange rate, forward exchange rate and the relationship between exchange rate and the trade balance will be discussed. Some empirical evidence on balance of current account and foreign debt will also be presented at the end of the chapter.

3.1 FLOATING EXCHANGE RATE REGIME

In the floating exchange rate regime, the rate is determined by the international demand and supply for the currency. Assume that the exchange rate is a price of foreign currency where upward movements are depreciation and downward movement is an appreciation his may appear counter-intuitive. Normally when a currency goes up it appreciates and when it goes down it depreciates. But we are talking about the value of the foreign currency in terms of local currency. So when it depreciates the local currency appreciates. For example, 1.60 Australian dollar = 1 euro. The Australian dollar depreciates if the price of one-euro rises to 1.70. This means more Australian dollars is needed to purchase one unit of euro. In Figure 3.1, Demand and supply for foreign currency (euro) are plotted. The demand for foreign currency represents imports and capital outflow (buying shares, bonds and bank deposits). The supply of foreign currency represents exports and capital inflow (foreigners investing in Australian assets). In this graph, Australia is home and Europe the foreign country.

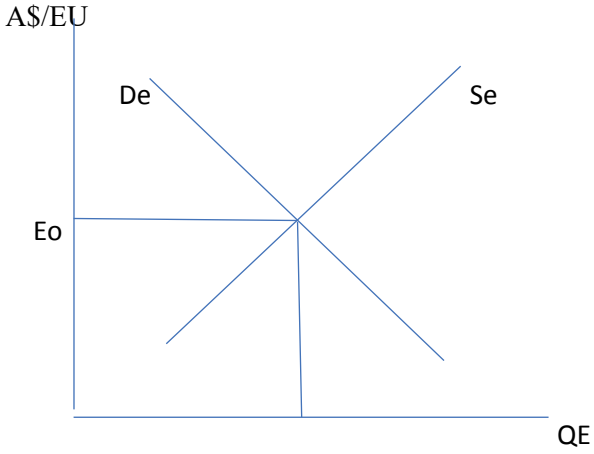

Figure 3.1 Foreign Exchange Market

In Figure 3.1, the equilibrium exchange rate is Eo. This equilibrium is not stable as demand and supply change continuously causing an appreciation or depreciation of home currency. For example, suppose Australians decide to purchase more automobiles from Germany. The rise in De causes the Australian dollar to depreciate against the euro. The exchange rate is very volatile, because decisions of many market participants continuously shift the demand and supply for the currency. Factors that increase the demand for foreign-currency leads to

an appreciation of foreign-currency and depreciation of the domestic currency. When the demand for foreign currency rises, the De curve moves up, leading to a new equilibrium which is higher than Eo, indication depreciation of the Australian dollar against the euro.

3.2 FIXED EXCHANGE RATE SYSTEM

Most of the developing countries operate under the fixed exchange rate system. In this system, the central bank set the exchange rate and stands ready to purchase foreign-currency (sell domestic currency) or sell foreign currency (purchase domestic currency) to maintain the exchange rate.

Suppose, in Figure 3.1, the central bank wishes to keep the exchange rate bellow Eo, where demand for foreign currency is greater than the supply of foreign currency. To maintain the exchange rate below Eo, the central bank must sell foreign currency (buy domestic currency). The life of the fixed exchange rate system, depends on the central bank's availability of foreign exchange reserves. Eventually, central banks are forced to devalue of revalue their currency or change to the floating system particularly if they are small countries under attack from hedge funds that are taking short or long positions in the currency in the hope for quick speculative gains.

Examples of moving to a floating system are the Australian dollar in 1983 and the British pound in 1993.In both cases, speculators expected that the central bank cannot maintain the exchange rate for long and reacted by selling the local currency. In case of Australian dollar, the central bank changed to a flexible regime and in case of British pound, UK was forced to leave the European Exchange Rate Mechanism.

There are several fixed exchange systems:

Currency Board Arrangements (CBA) are the most popular system of fixed exchange rates. In this, a currency is pegged to a foreign or a basket of currencies. The central bank's monetary policy is no longer operative; the money supply is based on foreign reserves.

See (https://en.wikipedia.org/wiki/Fixed_exchange-rate_system#Basket-of-currencies)

"CBAs have been operational in many nations, including:

- Hong Kong (since 1983);
- Argentina (1991 to 2001);
- Estonia (1992 to 2010);

- Lithuania (1994 to 2014);
- Bosnia and Herzegovina (since 1997);
- Bulgaria (since 1997);
- Bermuda (since 1972);
- Denmark (since 1945);
- Brunei (since 1967)"

Gold exchange standard (GES)

The GES was a fixed exchange rate system that remained operative between 1920, and the early 1930s. A GES is a combination of a reserve currency standard and a gold standard. Its features are the follows:

- All non-reserve countries fix their exchange rates to the selected reserve at some specified rate and agree to maintain a stock of reserve currency assets.
- The reserve currency country fixes the value of its currency to a fixed amount of gold and agrees to exchange its own currency for gold with other central banks.

Crawling pegs

In a crawling peg a country fixes its exchange rate to another currency or basket of currencies. This fixed rate is reviewed frequently to eliminate excessive exchange rate volatility. Crawling pegs are adjustments that prevent the need for central bank intervention in the market.

Currency substitution

An extreme example of currency substitution is the European Monetary Union where 19 countries in Europe have exchanged their currencies with a single currency, the Euro.
"There are similar examples of countries adopting the U.S. dollar as their domestic currency (dollarization): British Virgin Islands, Caribbean , East Timor, Ecuador, El Salvador, Marshall Islands, Federated States of Micronesia, Palau, Panama, Turks and Caicos Islands and Zimbabwe."

3.3 THE EUROPEAN MONETARY SYSTEM (EMS)

In 1973, six European countries, Belgium, France, Germany, Italy, Luxemburg, and The Netherlands, organized a fixed exchange rate system called *the Snake*. The currencies of the participating countries were allowed to fluctuate within a band of plus or minus 2¼% around pre-announced fixed rates. Later, in 1979, the European Monetary System (EMS) was formed where currencies of eight-member countries (Denmark and Ireland also joined) were fixed against the German Mark. Under the EMS, the monetary policy of member countries followed the monetary policy of Germany. The EMS was successful in keeping inflation in line with the inflation rate of Germany, which was the lowest rate in the European Union.

Figure 3.2 shows the inflation differential of seven members of EMS with Germany. From the high levels in the 1980s, the differential reached almost zero (except Italy) in the early 1990s.

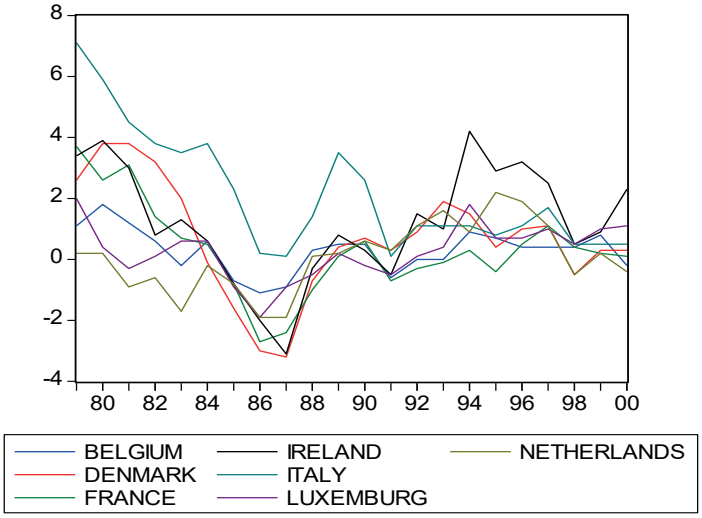

Figure 3.2: Inflation Differentials of EMS Members
This graph is reproduced from Monadjemi and Lodewijks (2015).

Britain joined the EMS in the early 1990s. The EMS lasted until 1992 when the British Pound depreciated significantly as a result of a speculative attack. In response, the limit of fluctuations increased to ± 15 percent, which automatically meant the end of the EMS.

3.4 CENTRAL BANK INTERVENTION

Central banks regularly intervene in the foreign exchange market to control excessive fluctuations of the exchange rate. The flexible exchange rate regime with central bank intervention is called a managed float. Most of the flexible exchange systems used in developed countries are managed floats.

There are money supply consequences whenever the central bank intervenes in the foreign exchange market. When the exchange rate depreciates rapidly, the central bank can temporarily halt excessive fluctuations by purchasing domestic currency and selling foreign currency. As a result of central bank's action, the domestic money supply will be affected. The ability of the central bank to protect the local currency depends on the availability of foreign exchange reserves. Eventually, the central bank may be forced to devalue the currency. Central bank interventions are always actioned by purchasing or selling US dollar, which is the most internationally accepted currency. The central bank may prevent excessive appreciation of the currency by selling domestic currency. Domestic money supply rises as a result of this intervention.

Often, the money supply consequences of central banks interventions are undesirable, especially when the money supply rises while inflation is high. The unwanted impacts of interventions may be sterilized by open market operations. For example, when an intervention causes the money supply to rise, the central bank may remove the undesirable effect by selling government bonds.

One of the most well-known interventions was a coordinated action by central banks of United States, Japan and Germany in 1985 to prevent continuous appreciation of US dollar. The US dollar started to appreciate significantly in early 1980s as a result of tight monetary policy to control inflation. The US dollar continued to appreciate until early 1985. The coordinated effort by three major central banks was effective to halt further appreciation of the US currency.

For the following, statements see:
(https://en.wikipedia.org/wiki/Currency_intervention#Historical_context)

Another important example is the intervention by the Swiss National Bank (SNB) to stop appreciation of the Swiss franc. "As the financial crisis of 2007–08 hit Switzerland, the Swiss franc appreciated. On March 12, 2009, the Swiss National Bank (SNB) announced that it would be purchasing foreign currency to prevent the Swiss franc from further appreciation." As a result of SNB purchase of euros and US dollars, the Swiss franc depreciated from 1.48 against the euro to 1.52 in one day. At the end of 2009, the Swiss franc began to appreciate again. The SNB intervened at a rate of more than a CHF 30 billion per month.

"On January 15, 2015, the SNB suddenly announced that it would no longer hold the Swiss Franc at the fixed exchange rate with the euro it had set in 2011. The franc soared in response; the euro fell roughly 40 percent in value in relation to the franc, falling as low as 0.85 francs (from the original 1.2 francs)."

Further example is the intervention by the China's central bank. In the 1990s and 2000s, there was a significant increase in American importation of Chinese's goods. China's central bank allegedly devalued yuan by buying large amounts of US dollars, causing increasing the supply of the yuan in the international markets, By December 2012, China's foreign exchange reserves were about $3.3 trillion, the highest foreign exchange reserve in the world.

3.5 DIFFERENT TYPES OF EXCHANGE RATE

The exchange rate is usually expressed in terms of US dollar. The exchange rate is called bilateral or spot rate, 1.30 US dollar per British pound, or 1.15 euro per pound. The cross rate between two currencies is calculated by using two spot rates against the US dollar. The spot rate is the rate against another currency. Fluctuations of spot rate don't show the overall performance of a currency. The overall weakness or strength of a currency is determined by the Trade Weighted Index (TWI) or the effective exchange rate.

$$\text{TWI} = \sum_{1}^{20} a_{ij}\, e_{ij} \qquad 3.1$$

In equation 3.1, i is the home currency and j are the foreign currency, a_{ij} is the weight attached to the exchange rate between currency i and j and e_{ij} is the spot exchange rate between i and j. The a_{ij} is the relative trade with country j given in equation 3.2. In 3.1 it is assumed that there are twenty currencies in the basket.

$$a_{ij} = (X_{ij} + M_{ij}) / (X_i + M_i) \qquad 3.2$$

Where X_{ij}, M_{ij}, X_i and M_i are exports of country I to country j, imports of country I to country j, total exports of i and total imports of i from j.

In Figure 3.3 the TWI of Australian dollar 1970 – 2019 is plotted. The base year is 1970 which is set at 100. In 2019 it is roughly about 61. This means that over 49 years, the Australian dollar, overall, has depreciated by 39 percent.

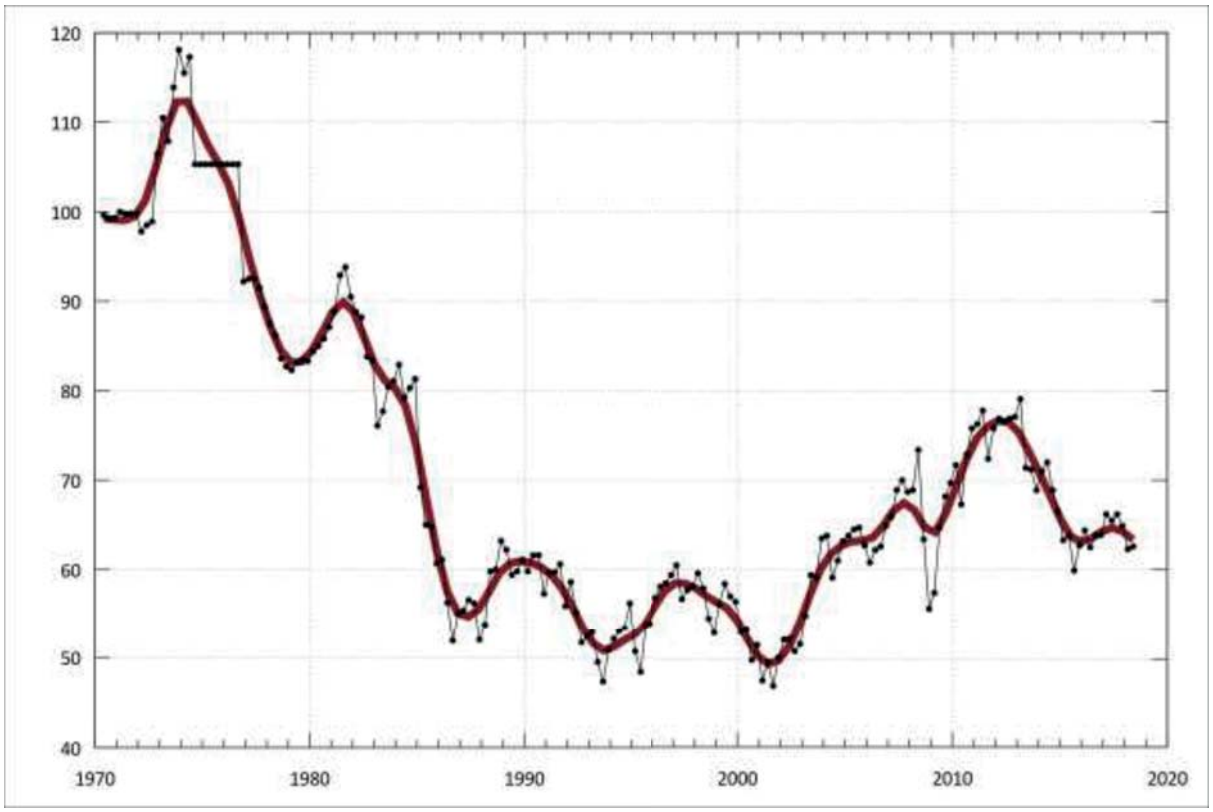

Figure 3.3 Trade Weighted Index of Australian Dollar 1970 - 2019

The above Figure was reproduced from https://en.wikipedia.org/wiki/Trade-weighted_effective_exchange_rate_index

The nominal spot and effective exchange rates are not a measure of competitiveness in international trade because they do not take account of changes in domestic and foreign prices. The proper measure of international competitiveness is the real exchange rate (RE). The RE is nominal exchange rate adjusted for domestic and foreign prices.

$$RE = P_f e / P_d \qquad 3.4$$

In 3.4, P_f, e and P_d is foreign price, level nominal exchange rate and domestic price level respectively. A rise in RE indicates real depreciation and improves international competitiveness of home-produced goods. Generally, in countries with high quantity of imports, such as Greece, Portugal and Spain, nominal depreciation causes a rapid rise of local goods. In these countries, a significant depreciation of currency is needed to improve international competitiveness.

The spot exchange rate is subject to excessive fluctuations. Often exporters and importers wish to cover themselves against the risk of exchange rate changes by buying or selling the foreign currency in the forward market. The forward exchange rate is the rate for delivery of a currency in the future. The difference between forward rate and the spot rate depends on the interest rate differential between two currencies. The forward premium or discount is equivalent to the expected exchange rate changes. When interest rates on a currency are higher than the other currency, the forward rate on the first currency is at discount. Conversely, the forward rate is at Premium when the interest rate on that currency is lower than the second currency.

The covered interest arbitrage is:

$$(1 + i) = F(1 + i^*) / E \qquad 3.5$$

Where I, E, F and i^* are home interest rate, spot exchange rate, forward margin and foreign interest rate respectively. Equation 3.5 shows that the return on one dollar invested at home must be equal to one euro invested in Europe covered by percentage of forward margin. The arbitrage in international markets leads the equilibrium in 3.5 to hold. In the above equation, the exchange rate is the price of foreign currency. 3.5 can be written as:

$$(1 + i) / (1 + i^*) = F/E \qquad 3.6$$

$i > i^*$ $F > E$ the local currency is at discount

$i < i^*$ $F < E$ the local currency is at premium

3.6 EXCHANGE RATE AND THE BALANCE OF PAYMENTS

The balance of payments (BP) is a record of all transactions between one nation and the rest of the word. The BP includes two sub-accounts, the current account (CA) and the capital and financial account (CFA).

The CA include balance of trade in goods and services and net income from the use of capital (interest paid and received on debt, net dividends, etc.), plus net transfers (net payments such as gifts, charities, and etc.).

The CFA lists inflow and outflow of capital (net borrowings, net investment in bonds and shares). Principal amounts are included in CFA and the net income for the use of capital is in CA. under a floating exchange rate regime the BP is zero. This shown in Figure 3.1, where at the equilibrium demand and supply for foreign currency are equal. The demand and supply for foreign currency include all the items in the BP. Thus, the difference between demand and supply is the balance of payments which is zero at the equilibrium.

Economists and researchers are generally interested in the balance of CA. Specifically, the trade balance which is influenced by the exchange rate. The trade balance is the difference between exports of goods and services and imports of goods and services. The trade balance may or may not improve when the real exchange rate depreciates. The Marshall- Lerner (ML) condition shows that the sum of the elasticity of exports and elasticity of imports must be greater than unity, for real exchange rate depreciation to improve the trade balance (the ML condition is discussed in the appendix of this chapter).

In Figure 3.4 Current account balances of six selected countries and OECD as percentages of GDP 2011 – 2017 is presented. China, Germany and Japan are the only three countries that show positive balances in seven years. All of these three countries also have positive trade balances as they export more to the rest of the world than they import from the rest of the world. The US, UK and Australia have experienced persistent current account deficits. In the Australian case, a large part of the deficits is due to servicing for the use of foreign capital in the form of interest payments and dividends.

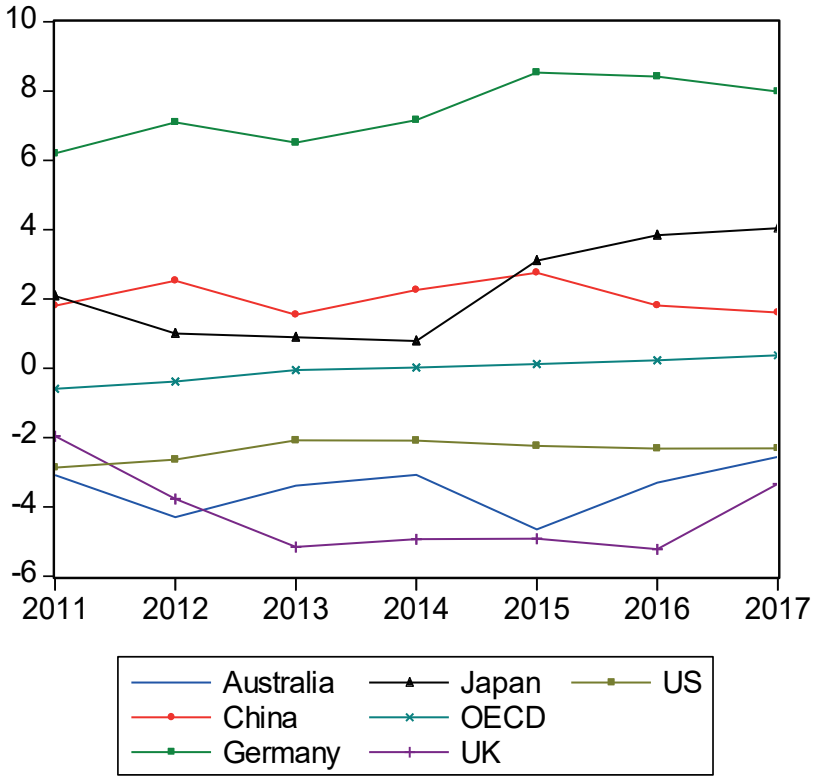

Figure 3.3 Current Account Balances % of GDP Selected Countries

The date for Figure 3.4 were collected from the https://stats.oecd.org/Index.aspx?DataSetCode=QITS

This chapter has presented some basic information on exchange rates and currency arrangments. We have not delved into the effects of exchange rate instability and volatile capital flows. Nor to the impacts of global hedge funds that speculate on foreign currencies. These are fundamental topics to be discussed later.

Appendix Mathematica derivation of Marshal Lerner Condition

$$TB = X - Me \tag{3.7}$$

In equation 6 TB, X, M and e (price of Foreign currency) are trade balance, exports, imports and real exchange rate respectively. eM is the value of imports in domestic currency.

Differentiating 3.6 totally and dividing both sides by de yields:

$$dTB/de = \frac{\partial X}{\partial e} - \frac{\partial M}{\partial e} e - M \tag{3.8}$$

Multiplying both sides of 3.8 by 1/X gives:

$$dTB/de\ 1/X = \frac{\partial X}{\partial e} 1/X - \frac{\partial M}{\partial e} e/X - M/X \tag{3.9}$$

At the equilibrium TB = X – eM = 0 or e = X/M

Multiplying both sides of 3.9 by e yields:

$$dTB/de\ e/X = \frac{\partial X}{\partial e} e/X - \frac{\partial M}{\partial e} e/M - 1 \tag{3.10}$$

In 3.10 e/X is ositive. For depreciation to improve TB, dTB/de must be positive.

$\frac{\partial X}{\partial e} e/X$ and $\frac{\partial M}{\partial e} e/M$ and e/ M are elasticities of exports and imports respectively, μ_x and μ_M. It follows that

$$dTB/de\ e/X = \frac{\partial X}{\partial e} e/X - \frac{\partial M}{\partial e} e/M - 1 > 0 \tag{3.11}$$

$$\lfloor \mu_x + \mu_M \rfloor > 1$$

In μ_M is positive because $\frac{\partial M}{\partial e}$ is negative.

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https://en.wikipedia.org/wiki/Currency_intervention#Historical_context

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https://en.wikipedia.org/wiki/Fixed_exchange-rate_system#Basket-of-currencies

4 INTERNATIONAL FINANCIAL INSTITUTIONS

This chapter discusses four international financial institution including the International Monetary Fund (IMF), International Bank for Reconstruction and Development (IBRD), International Trade Organization (ITO) and Bank of International Settlements (BIS). These institutions are responsible to help member counties to stabilize their economies, to construct infrastructure, to settle international payments and to encourage free trade. Although they are not without their critics. The WTO has been the subject for riots and demonstrations and less effective than its predecessor, the GATT. The IMF has had to reinvent itself several times from becoming irrelevant and to counter claims that it should be abolished, especially after its faulty advice during the Asian Crisis. The World Bank, the popular name for the IBRD, has long been the subject of criticism from environmental groups and those that believe it impinges on national sovereignty. The BIS, comparatively speaking, is less controversial although some have claimed it is not objective enough and dominated by certain central banks.

4.1 INTERNATIONAL MONETARY FUNDS (IMF)

IMF was established in 1945 as part of the Breton Woods agreement. The Great Depression of 1930s led countries to adapt trade protective measures and devaluation of their currencies in order to recover from the down-turn. In response to the Great Depression of 1930s, representatives of 29 countries met in Breton Woods New Hampshire in 1944. The purpose of the meeting was to reconstruct the system of international payments for member counties.

The IMF's website describes its mission as «to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world."

Initially, there were 45 countries that joined the IMF as members. Influential participants at the meeting were John Maynard Keynes from the United Kingdom and Harry Dexter White from the United States. These two representatives had different views about formation of the IMF. Keynes believed that IMF should help member countries to improve their economic activity after crises.

Dexter viewed IMF as a bank which can lend to members whenever they experienced trade imbalances. The IMF promoted international financial cooperation by introducing a Fixed exchange rate regime against the US dollar. The price of gold was set at 35 US dollar. The fixed exchange rate was determined to value a particular currency relative to gold. For example, if 1 pound was equal to 1 gram of gold and 1 dollar was equal to ½ gram gold, then the exchange rate between was set at 1 pound = 2 US dollar. The countries were allowed to revalue or devalue their currencies by 10% of the par value. Any more changes in the exchange rate were subject to the approval by the IMF.

At the present time there are 189 countries that are members of IMF. Each member country has a representative on the board of IMF. Each representative has some vote based upon economic strength of their respective country. Each member country, based upon quotas, contributes regularly to the IMF revenues.

Initially, the main function of IMF was to monitor development in the balance of payments of the member countries and surveillance and maintenance of the fixed exchange rate system. After the breakdown of the Bretton Woods fixed exchange rate regime in the early 1970s, the IMF mainly oversees the global monetary and financial system through monitoring economic and financial policies of member countries. Since the early 1970s, the function of IMF has changed from being a guardian to supervision of members' economic policies. The primary goal of the IMF is to prevent worldwide financial crises like Latin American debt crises in the early 1980s, the Asian crises in late 1990s, and the Great Recession in

2007-2008. The IMF attempts to achieve this goal by monitoring economic policies of member countries with the aim of preventing the effects of those policies on the global financial instability. Although sceptics argue that they in fact have exacerbated the effects of global financial instability.

The transactions between member countries and IMF are in Special Drawing Rights (SDR). The SDR was introduced in 1969, and initially it was valued at 1SDR = 1US dollar. Later SDR was based on weighted average of 16 currencies. In 1981, the value of SDR was based on weighted average of US dollar, British pound, French franc, Deutsch mark and Japanese yen. Currently, SDR is weighted average of US dollar, Euro, British pound, Japanese yen and Chinese renminbi. The respective weights are determined by the importance of a currency in international trade and foreign exchange reserves. The weights are adjusted every five years. The most recent weights, 2016 – 2020 is:

US dollar 41.73%, euro 30.93%, Chinese's renminbi 10.92%, Japanese yen 8.33% and British pound 8.09%. Each country is allocated certain amount of SDR by the IMF. The allocations are based on quotas of the respective country.

IMF conditionality is a set of conditions that the IMF requires for the extension of financial assistance. The borrowing country leaves collateral for loans but also its government is expected to introduce reforms for correction of its macroeconomic problems. If the conditions are not satisfied, the funds will not be provided. "Conditionality is associated with economic theory as well as an enforcement mechanism for repayment. Stemming primarily from the work of Jacques Polak, the theoretical underpinning of conditionality was the "monetary approach to the balance of payment"., See

https://en.wikipedia.org/wiki/International_Monetary_Fund#Conditionality_of_loans

The same source also lists some of the conditions for structural adjustment:

Reducing expenditures, austerity,

Encouraging export and resource extraction,

Devaluation of currencies,

Free trade, removing import and export restrictions,

Enhancing the reliability of investment (by encouraging foreign direct investment with the

Opening of domestic stock markets to foreign investors),

Removing price controls,

Privatization of state-owned enterprises,

Introducing laws to protect rights of foreign investors,

Improving governance and fighting corruption.

These loan conditions ensure that the borrowing country will be capable of repaying the IMF and also the borrower will not resolve its balance-of-payment difficulty such that it adversely affects the global economy. Conditionality also indicates to IMF that the funds used by the borrower will improve its macroeconomic and structural imbalances.

https://en.wikipedia.org/wiki/International_Monetary_Fund-cite_note-What's_Wrong-13Conditionality also reassures the IMF that the funds lent to them will be used for the purposes defined by the Articles of Agreement and provide safeguards that country will be able to rectify its macroeconomic and structural imbalances. In the judgment of the IMF, the adoption by the member of certain corrective measures or policies will allow it to repay the IMF, thereby ensuring that the resources will be available to support other members.

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As of 2004, borrowing countries have had a very good track record for repaying their loans in line with the IMF's regular lending facilities with full interest over the maturity of the loan. This shows that IMF lending is not a burden on borrowing countries.

However, conditionality is a contentious topic. Critics allege that the IMF is more interested in getting poor countries to repay foreign loans than in the welfare of local citizens. Their structural adjustment programs are based on a narrow perspective aligned to free market ideology, it is claimed. Adjustment with a human face is often lacking. Macroeconomic policies are often contractionary in impact from these conditionality packages and that worsens the down-turn in economic activity.

International Bank for Reconstruction and Development (IBRD)

The International Bank for Reconstruction and Development (IBRD) is a global development cooperative owned by 189 member countries. The IBRB and the International Development Association are known as World Bank Group. As the largest development bank in the world, it supports the World Bank Group's mission by providing loans, guarantees, risk management products, and advisory services to middle-income and creditworthy low-income countries, as well as by coordinating responses to regional and global challenges. This group includes countries ith per capita gross national income ranging from 1026 to 12475 US dollar. These countries include 73 percent of world's poor people and together they produce 1/3 of world's GDP.

Created in 1944 to help Europe rebuild after World War II, IBRD joined with IDA, to form the World Bank. They work closely with all institutions of the World Bank Group and the public and private sectors in developing countries to reduce poverty and build shared prosperity. Although how effective they have been is up for debate. China has spearheaded another rival organization that it believes is more representative of the interests of poor countries – the Asian Infrastructure Investment Bank.

The IBRD is owned and governed by its member states, but has its own executive leadership and staff, which conduct its normal business operations. The Bank's member governments are shareholders, which contribute paid in capital and have the right to vote on its matters. In addition to contributions from its member nations, the IBRD acquires most of its capital by borrowing on international capital markets through bond issues. In 2011, it raised $29 billion USD in capital from bond issues made in 26 different currencies. The Bank offers a number of financial services and products, including flexible loans, grants, risk guarantees, financial derivatives, and catastrophic risk financing. It reported lending commitments of $26.7 billion made to 132 projects in 2011.

The International Bank for Reconstruction and Development (IBRD) and International Monetary Fund (IMF) were established by delegates at the Bretton Woods Conference in 1944 and became operational in 1946. The IBRD was established with the original mission of financing the reconstruction efforts of war-torn European nations following World War II, with goals shared by the later Marshall Plan. The Bank issued its inaugural loan of $250 million ($2.6 billion in 2012 dollars) to France in 1947 to finance infrastructure projects. The institution also established its first field offices in Paris France, Copenhagen Denmark, and Prague in the former Czechoslovakia. Throughout the remainder of the 1940s and 1950s, the Bank financed projects seeking to dam rivers, generate electricity, and improve access to water and sanitation. It also invested in France, Belgium, and Luxembourg's steel industry. Following the reconstruction of Europe, the Bank's mandate has transitioned to eradicating poverty around the world. In 1960, the International Development Association (IDA) was established to serve as the Bank's concession lending arm and provide low and no-cost finance and grants to the poorest of the developing countries as measured by gross national income per capita.

World Trade Organization (WTO)

The WTO is an international organization that regulates trade and tariffs. The WTO formally was established on 1 January 1995. The initial agreement was signed by 124 nations on 15 April 1994. The WTO replaced the General Agreement on Tariffs and Trade (GATT), which was introduced after the Bretton Woods in 1948.

The WTO main function is to provide regulations for trade of goods and services and intellectual property for participating nations. The WTO provides a framework for negotiation and resolution of disputes between nations, in accordance with the initial agreement.

The General Agreement on Tariffs and Trade (GATT) was formed in 1948 after World War II. GATT is an attempt to increase international trade through removal or minimization of trade barriers such as tariffs, quotas and subsidies. GATT regulations became law on Jan. 1, 1948, and 23 participant countries signed the agreement. GATT has been revised since its introduction and eventually became the World Trade Organization on Jan. 1, 1995 with 123 members.

The GATT had eight rounds of agreements in total from April 1947 to September 1986, each reached significant result. All of these agreements led to reduction of a substantial amount of tariffs. For details see: (https://en.wikipedia.org/wiki/World_Trade_Organization#GATT_Negotiations_before_Uruguay)

The eighth round of GATT was held in 1986, in Uruguay. Many more topics besides tariffs were included in this meeting such as, intellectual property, agriculture and dispute settlement. This meeting led to the introduction of the WTO. The WTO has been far less successful and many of its trade rounds have been abandoned or long delayed. Poor countries allege that the WTO is biased against their interests.

Bank of International Settlements (BIS)

The Bank for International Settlements is an international financial institution owned by 60 central banks, which administers international monetary and financial cooperation and also is a bank for central banks. The BIS attempts pursue global financial stability and providing banking services to central banks and other international financial institutions. The BIS headquarter is in Basel Switzerland, with representative offices in Hong Kong and Mexico City.

See (https://en.wikipedia.org/wiki/Bank_for_International_Settlements)

The original mission of the BIS is to guide central banks to purse monetary and financial stability, to foster international cooperation among members and to act as a bank for central banks.

The role that the BIS play today goes beyond its historical role. The original goal of the BIS was "to promote the co-operation of central banks and to provide additional facilities for international financial operations; and to act as trustee or agent in regard to international financial settlements entrusted to it under agreements with the parties concerned" as stated in its Statutes of 1930. The followings are today's main functions of BIS:

- fostering discussion and facilitating collaboration among central banks;
- supporting dialogue with other authorities that are responsible for promoting financial stability;
- carrying out research and policy analysis on issues of relevance for monetary and financial stability;
- acting as a prime counterparty for central banks in their financial transactions; and
- Serving as an agent or trustee in connection with international financial operations.

As an organization of central banks, the BIS seek to make monetary policy more predictable and transparent among its 60-member central banks. While monetary policy is determined independently by each central bank, it is always subject to speculative movements by financial markets, which influences the foreign exchange rates and could be harmful for exporting and importing countries.

Two areas of monetary policy BIS attempts to regulate are capital adequacy and to make reserve requirements transparent. Capital adequacy policy applies to equity and capital assets. The Basel standards require the internationally commercial banks to be in excess of a prescribed minimum in order to improve the resilience of the banking sector.

In https://en.wikipedia.org/wiki/Bank_for_International_Settlements is argued that:

> *"The main role of the Basel Committee on Banking Supervision, hosted by the BIS, is setting capital adequacy requirements. From an international point of view, ensuring, capital adequacy is the key for central banks, as speculative lending based on inadequate underlying capital and widely varying liability rules cause economic crises as "bad money drives out good"*
>
> – Gresham's Law

It encourages reserve transparency. Reserve policy is also important to protect depositors and prevents run on banks. Central banks require banks to keep a certain percentage of their deposits in reserves. Reserve requirements can be held in form of cash or reserves at the central bank.

Reserve policy is more difficult to standardize than capital adequacy, as it depends on local economic conditions and is often set to influence specific regions or industries, especially within large developing nations. For instance, the People's Bank of China (PBOC) sets different reserve requirements for banks operating in urban and rural areas. Effectively, the PBOC sets different reserve levels for banks lending to exporters and production for domestic consumption. Historically, the United States also followed the same strategy, by dividing federal monetary policy into nine regions, where tighter policies were applied to more prosperous eastern regions.

For several reasons, it has become quite difficult to set reserves accurately on complicated loans and also the regional differences have tended to discourage standardize reserve requirements globally.

Despite various iterations of the Basel rules, there is no clear presumption that global financial stability has been tamed.

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https://en.wikipedia.org/wiki/International_Monetary_Fund#Conditionality_of_loans

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https://en.wikipedia.org/wiki/Bank_for_International_Settlements

5 GLOBALIZATION IN TRADE AND CAPITAL FLOWS

5.1 HISTORICAL BACKGROUND

Globalization has many dimensions; cultural integration, immigration, scientific and technology integration and economic globalization. This chapter concentrates on the economic globalization. Economic globalization is the process of enhancing economic integration between nations, leading to the gradual development of a single world market for trade of goods and services and movement of capital.

The Bretton Woods agreement is considered as the beginning of global integration of trade and finance. The first step was the creation of General Agreement on Tariffs and Trade (GATT) where co-signing nations agreed to reduce trade barriers. The GATT was replaced by World Trade Organization (WTO) which provided a general agreement on trade negotiation and dispute resolutions among the participating countries. Note that as a result of the reduction of trade barriers eexports nearly doubled from 8.5% of total gross world product in 1970 to 16.2% in 2001.

As a result of globalization advanced economies have integrated more deeply with other advanced countries as well as less-developed economies via direct foreign investment, the removal of trade restrictions and economic reforms. There has also been more integration within the developing world. Initially, before the 1970s, US was the dominant exporter in the world. But after the progress of globalization, Germany, Japan, South Korea and China have significantly become major competitors of the United States in the global export market.

Recently it has been difficult for one country to dominate the world economically and politically. Various international institutions such as United Nations Organization, International Monetary Fund, World Trade Organization and World Bank also play a key role in determining the distribution of the net gains from globalization.

5.2 GLOBALIZATION IN TRADE

"The tremendous growth of international trade over the past several decades has been both a primary cause and effect of globalization. The volume of world trade increased 27-fold from $296 billion in 1950 to $8 trillion in 2005" (WTO, 2007).

In table, 3.1 total merchandise exports for the world and the selected top exporting countries and regions are presented. In recent years, 2015 and 2016, world exports have declined. This is a result of the struggling economies of Europe and downturn in China's economy. The year 2015 was the worst year for world exports. The exports for all the selected counties and regions declined. However, in 2017, the world exports as well as exports of all the top exporters improved but are now under threat with trade wars erupting.

In recent years, China has experienced an economic slowdown along with the rest of the world any downturn will have a world-wide impact. In the years leading up to the global recession, China was growing at an unprecedented pace: averaging 10% over a 40 year period.. However, the Beijing government recently predicted a rate of six percent growth, for the next year, a slowdown for the previously hot Chinese's economy. China maintains the world's largest reserves of US treasuries, which makes it vital in determining the amount of trade that occurs in the world market.

Year	2012	2013	2014	2015	2016	2017
World	11503	11859	12289	11419	11240	12161
China	1372	1443	1438	1209	1195	1413
Europe	4341	4506	4493	3878	3760	4295
Japan	819	808	761	603	566	633
US	2252	2268	2349	2197	2132	2302
Six Asian	1489	1549	1541	1321	1244	1373

Table 5.1 Total Merchandise Exports Billions of US dollars

This table is based on data collected from the WTO site

Further insight into the world exports is presented in Figure 5.1 where quarterly data on total merchandise exports of a group of top countries for the past 25 years is plotted. All the five countries' exports rose sharply in the early 2000s, roughly when rapid removal of the trade barriers started. The sharpest rise in exports was experienced by China. All the five countries' exports fell during the Great Recession in 2007 – 2008. Chinese, US and Germany's exports recovered after the GR, but Japanese and Six Asian's remained relatively stable from 2009 to 2017.

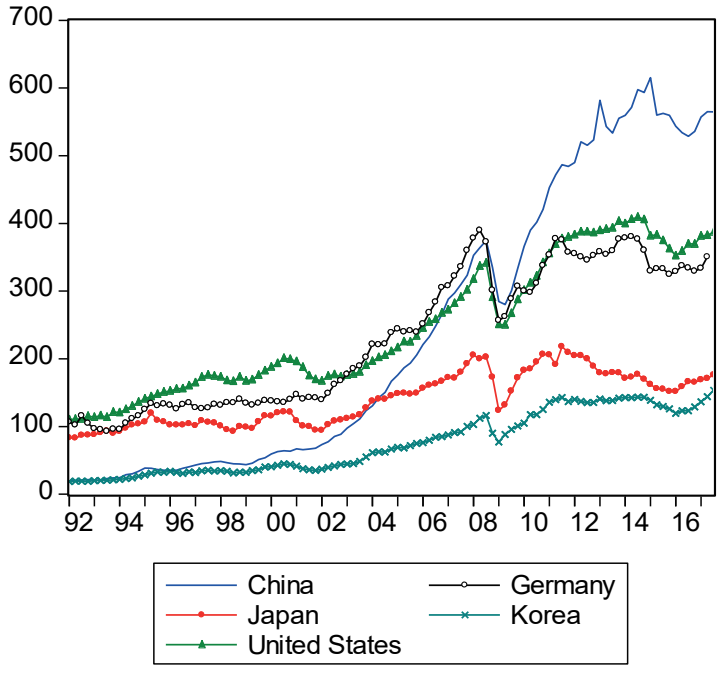

Figure 5.1 Selected Countries' Total Merchandise Exports 1992 - 2017

As a result of increased international trade, consumers around the world enjoy a larger choice of goods and services than they would if their choice were restricted to domestically made products

Although higher international trade has contributed to the economic growth across the world – raising incomes, higher employment, falling prices, and increasing workers' purchasing power WTO reports that percentage of people in the world living less than 1.90 US$ has decreased from 42.1 percent in 1981, to 9.9 percent in 2015. But globalization of trade can also create economic, political, and social instabilities.

Since the global economy is so inter-related through trade and capital flows, when large economies suffer instabilities, the effects are transferred to the rest of the world. For example, when China's imports decrease, output and employment in China's exporting countries deteriorate. Globalization can improve and also deteriorate employment and economic activity. Furthermore, global interconnection of financial markets may cause financial crises to move from the original country to the rest of the world. The global financial crises of 2007 – 2008 is an example of how subprime mortgage crises in the United States became global. This is called contagion.

5.3 GLOBALIZATION IN FINANCE

Hauser (2002) argues that "During the past two decades; financial markets around the world have become increasingly interconnected. Financial globalization has brought considerable benefits to national economies and to investors and savers, but it has also changed the structure of markets, creating new risks and challenges for market participants and policymakers."

Lane and Milesi-Ferretti (2001, 2007) propose the sum of foreign assets and foreign liabilities (expressed as a ratio to GDP and termed the IFI ratio) as a measure of the cross-border financial integration. The authors examine the aggregate IFI ratios for groups of advanced and emerging economies. Their findings show "the remarkable expansion in cross-border financial positions for the advanced-economy group, which rose from 68.4 percent in 1980 to a peak of 438.2 percent in 2007. Within this period, there were two acceleration phases, with a step increase in the growth of cross-border positions in the mid-1990s and a further intensification during 2004-2007". The IFI ratio plunged in 2008; it subsequently recovered during 2009-2010.

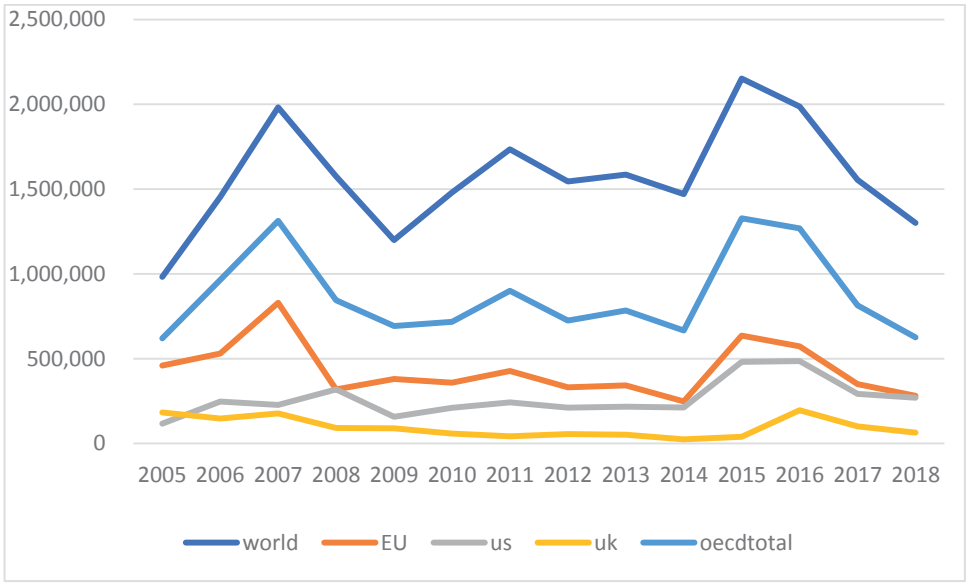

Figure 5.2 FDI Financial Flows Millions $US

FDI stands for foreign direct investment. The time series for the above chart were collected from the OECD website, statistics.

A similar approach is presented in Figure 5.2 where FDI for world, OECD countries, EU and two major economies is plotted. All the five financial flows rose up to 2007 and then sharply declined, perhaps as a result of 2007 – 2008 financial crises. Again, financial flows peaked in 2015 and subsequently declined. In 2018, world's financial flows were higher than 2005.

Even the most cursory review of major international economic trends over the past several decades shows there have been revolutionary changes in world financial markets. During the 1950s and 1960s, financial institutions and their regulatory structures in major industrial countries evolved in relative isolation. That situation has changed significantly in the 1970s, and the pace of change accelerated in the 1980s. The interaction of several powerful forces has produced massive capital flows across national boundaries. At the same time, the structure and operation of world financial markets have been transformed. Today, world financial markets are highly integrated, and transactions have become increasingly complex. These phenomena are reflected in cross-listing of securities in several countries, cross-country hedging and portfolio diversification, and 24-hour trading in financial instruments at exchanges around the world.

Many of the channels used for financial transactions have also changed. There has been a major shift, relatively, from banks to nonbank financial intermediaries, such as brokerage houses, securities' firms, insurance companies, and pension funds. There has also been a shift from loans to securities and a rise in the use of foreign financial centers. In addition, there has been a surge in the use of new financial instruments and, in particular, of derivative products (such as financial options, futures, and swaps on interest rates, foreign currencies, stocks, bonds, and commodities). These instruments have been developed to meet the needs and preferences of different customers, including their desire to hedge risks in an environment of fluctuating exchange rates, interest rates, stock prices, and commodity prices.Hausler (2002) indicates that there are three main forces behind the globalization of finance:

Advances in information and computer technologies have had a major impact. All market participants have been able to evaluate risks, process information and complete financial transactions very quickly.

The globalization of national economies has moved significantly as real economic activity such as production, consumption, and physical investment, has been spread globally. Most of the advanced economies have reduced barriers to international trade. "World exports of goods and services, which averaged $2.3 billion a year during 1983-92, have more than tripled, to an estimated $7.6 billion in 2001" These developments have increased demand for cross-border finance and, in combination with financial liberalization, enhanced international mobility of capital and liquidity. He notes that:

"The globalization of financial intermediation is to some extent a response to the demand for mechanisms to intermediate cross-border flows and partly a response to declining barriers to trade in financial services and liberalized rules governing the entry of foreign financial institutions into domestic capital markets. Global gross capital flows in 2000 amounted to $7.5 trillion, a fourfold increase over 1990. The growth in cross-border capital movements also resulted in larger net capital flows, rising from $500 billion in 1990 to nearly $1.2 trillion in 2000"

Competition among the providers of intermediary services has increased as a result of technological advances and financial liberalization. The authorities in many countries have changed regulations related to financial intermediation to permit a wider range of institutions to provide financial services. A new group of nonbank financial institutions have started operation. Investment banks, securities' firms, asset managers, mutual funds, insurance companies, specialty and trade finance companies, hedge funds, and even telecommunications, software, and food companies have started to provide financial services that were traditionally provided by banks.

5.4 BENEFITS AND COSTS

All in all, the radical change into the nature of capital markets has offered unprecedented benefits. But it has also changed market dynamics in ways that are not yet fully understood.

One of the main benefits of the growing diversity of funding sources is that it reduces the risk of a "credit crunch." When banks in their own country are under strain, borrowers can now raise funds by issuing stocks or bonds in domestic securities' markets or by seeking other financing sources in international capital markets. Securitization makes the pricing and allocation of capital more efficient because changes in financial risks are reflected much more quickly in asset prices and flows than on bank balance sheets. The downside is that markets have become more volatile, and this volatility could pose a threat to financial stability. For example, the OTC derivatives markets, which accounted for nearly $100 trillion in notional principal and $3 trillion in off-balance-sheet credit exposures in June 2001, can be unpredictable and, at times, turbulent. Accordingly, those in charge of preserving financial stability need to know how the globalization of finance has changed the balance of risks in international capital markets and ensure that private risk-management practices guard against these risks.

Another benefit of financial globalization is that, with more choices open to them, borrowers and investors can obtain better terms on their financing. Corporations can finance physical investments more cheaply, and investors can more easily diversify internationally and tailor portfolio risk to their preferences. This encourages investment and saving, which facilitate real economic activity and growth and improve economic welfare. However, asset prices may

overshoot fundamentals during booms and busts, causing excessive volatility and distorting the allocation of capital. For example, real estate prices in Asia soared and then dropped precipitously before the crises of 1997-98, leaving many banks with non-performing loans backed by collateral that had lost much of its value. Also, as financial risk becomes actively traded among institutions, investors, and countries, it becomes harder to identify potential weaknesses and to gauge the magnitude of risk. Enhanced transparency about economic and financial market fundamentals, along with a better understanding of why asset market booms and busts occur, can help markets better manage these risks.

Finally, creditworthy banks and firms in emerging-market countries can reduce their borrowing costs now that they are able to tap a broader pool of capital from a more diverse and competitive array of providers. However, as we saw during the Mexican crisis of 1994-95, the Asian and Russian crises of 1997-98 and the global financial crises o 2007 – 2009, the risks involved can be considerable—including sharp reversals of capital flows, international spill overs, contagion and accumulation of sub-prime assets. (Even though the extent of contagion seems to have decreased, for reasons that are still unclear, since the 1997-98 crises, the risk of contagion cannot be ruled out.) Emerging-market countries with weak or poorly regulated banks are particularly vulnerable, but such crises can threaten the stability of the international financial system as well.

5.5 SAFEGUARDING FINANCIAL STABILITY

The crises of the 1990s and the late 2000s underestimated the need for prudent sovereign debt management, properly sequenced capital account liberalization, and well-regulated and resilient domestic financial systems, to prevent national and international financial instability.

Private financial institutions and market participants can contribute to financial stability by well management of their enterprises and financial risks and avoiding excessive risk taking—in part by maximizing shareholder value and keeping appropriate relationships with other institution in markets. In effect, the most important factors to avoid financial instability and systemic risks are well managed financial institutions, efficient financial markets, and strong market discipline.

But, because financial stability is also a global public good, national governments and international regulatory institutions must also play a role. After the global financial crises of 2007 - 2008, this role is becoming increasingly international in scope.

The IMF has an important role. In accordance with its global surveillance mandate, it has introduced a number of steps to strengthen its power to contribute to international financial stability: identifying and reviewing weaknesses in international financial markets; developing advance signal systems for international financial market irregular behaviours; conducting research into the causes and origins of international financial crises and the channels of contagion; and seeking ways to control and resolve crises smoothly, for example, by reducing governments activity and expanding the private sector.

Whether these measures are sufficient to avoid future global financial instability is questionable. History does tend to repeat itself.

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6 GREAT DEPRESSION AND GREAT RECESSION COMPARED DOES HISTORY REPEAT ITSELF?

6.1 THE GREAT DEPRESSION 1929 - 1939[3]

The Great Depression of 1930s occurred from 1929 to 1939, and was the longest and deepest economic downturn in history . It started after the US stock market crash of October 1929, which caused the wealth of shareholders to fall by millions of dollars. Subsequently, over the next several years, consumer spending and investment declined sharply, causing severe falls in industrial production and employment as failing enterprises reduced employment. By 1933, when the Great Depression reached its lowest downturn, about 15 million Americans were unemployed and many banks had failed.

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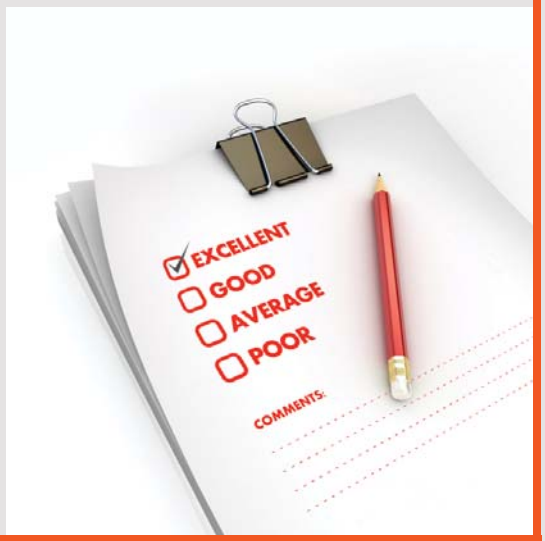

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Throughout the 1920s, the U.S. economy had grown rapidly, and the nation's total wealth from 1920 to 1929, more than doubled. Encouraged by the expansion of the economy, many people invested their savings in stocks. The share prices rose rapidly, reaching their peaks in August 1929.

Meanwhile, production had already declined and unemployment rose, making stocks over valued. Furthermore, with low wages, consumer spending declined; the agricultural sector of the US economy was fighting to survive due to drought and food prices falling. Banks had a large portfolio of non-performing loans.

During the summer of 1929, the US economy entered a recession, as consumer spending fell and inventories started to pile up, causing lower production. However, share prices continued to rise, reaching a level that was not supported by companies' expected future earnings.
The US stock crashed on October 24, 1929, as a record 12.9 million shares were traded that day, known as "Black Thursday." Five days later, on October 29 or "Black Tuesday," about 16 million shares were exchanged after second panic sale swept Wall Street.

As a result of the stock market crash, consumer confidence fell significantly and the downturn in spending and investment led factories and other businesses to slow down production and begin reducing employment. For those who remained employed, wages fell and their purchasing power decreased.

The inflexibility of the gold standard and the fixed exchange rate caused the spread of the American downturn to other countries in the world, particularly to Europe.

Despite encouragements from President Herbert Hoover and other authorities that the crisis would be over soon, the downturn continued to become worse during the next three years. By 1930, unemployment reached 4 million and increased to 6 million in 1931.

Meanwhile, the US industrial production had dropped by 50 percent. These developments affected Americans' living standard as "Bread lines, soup kitchens" and more and more numbers of homeless people became common features in towns. Farmers failed to harvest their crops, and were forced to leave them being destroyed in the farms while many people were starving in other areas.

In the fall of 1930, the first of banking panics started, as large numbers of depositors lost confidence in the solvency of the banking system and rushed to withdraw their banks deposits, causing banks to liquidate loans for supplementing their liquidity. Run on banks occurred in the United States again in the spring and fall of 1931 and in the fall of 1932, and in the beginning of 1933 thousands of banks were forced to close their doors.

In the face of this dire situation, Hoover's administration tried supporting failing banks and other institutions with government loans; the idea was that the banks in turn would loan to businesses, which would be able to hire back their employees. Hoover, a Republican who had formerly served as U.S. secretary of commerce, believed that government should not directly intervene in the economy, and that it did not have the responsibility to create jobs or provide economic relief for its citizens.

In 1932 at the depth of the depression when 15 million people were unemployed, Franklin D. Roosevelt was elected as the President of the United States. At that time every State ordered the remaining solvent banks to remain closed. Roosevelt encouraged people to optimism through his famous statement "the only thing we have to fear is fear itself." Roosevelt took immediate action to address the country's depressed economic activity by announcing a four-day "bank holiday" during which the Congress passed reform legislation and reopen those banks that were determined to remain.

During Roosevelt's first months in office, legislations were designed to stabilize industrial and agricultural production, create employment and stimulate the economy. Furthermore, Roosevelt aimed to improve the financial system by creating the Federal Deposit Insurance Corporation (FDIC) to protect bank deposits and the Securities and Exchange Commission (SEC) to control the stock market and prevent undesired speculative activity that caused the 1929 crash.

The recovery began in early 1933 and the economy continued to recover during the next three years when on average the real GDP grew by 9 percent per year. After a severe recession in 1937, the US economy continued to recover in 1938. The second contraction in 1937 offset most of the earlier gains in production and employment and caused the effects of the Great Depression to last until the end of the decade (see Figure 3 below).

The economic depressing effects of depression in Europe led to the rise of nationalism and Nazi regime in Germany. The Nazi regime occupied several counties in Europe and led to the war in Europe. In the United States, President Roosevelt decided to stand behind Britain and France against Germany. In 1941 United States entry into WWII caused significant expansion of industrial production and falling unemployment to the level before the depression.

6.2 THE GREAT RECESSION 2007 – 2009 (AND FAR LONGER IN SOME COUNTRIES)

Blanchard and Summers (2007) attempted to compare reactions of the US economy to macroeconomic stabilization policy implemented during the Great Depression (GD) and the Great Recession (GR). Both GD and GR started with financial shocks.

The GR was initially caused by large quantities of non-performing mortgages held by financial institutions in Europe and the United States. The crises became global when high risk mortgage loans were packaged together and passed to financial intermediaries throughout the world. The non- performing assets caused a shortage of liquidity in many affected financial institutions. Bank lending was significantly reduced, and the mortgage crises led to the GR, which was the biggest since the GD of 1930s.

Blanchard and Summers (2017) argued that in 2008 the US economy did not completely collapse as it did in 1933. However the recovery in the latter period was much slower than the former. This means that the growth rate of the US economy was much higher in the late 1930s than it was in the recovery after the 2008. The authors point out that the macro stimulation policies, fiscal and monetary, and bail out of financial institutions during the GR, were significantly higher to keep the unemployment much less than the 25 percent that was experienced in 1929.

Figure 6.1 and Figure 6.2 show US real GDP and the growth of real GDP. In figure 2 the growth of US real GDP fluctuated violently until the mid1950s. These early fluctuations were mainly due to the effects of Great Depression and the WWII. The growth of US real GDP experienced relative stability during the rest of the sample period. However, the US growth rate was negative in the early 1980s and during the Great Recession in 2007 – 20089.

The decade of 1960s is known as the golden years when the US economy showed consistent steady growth.

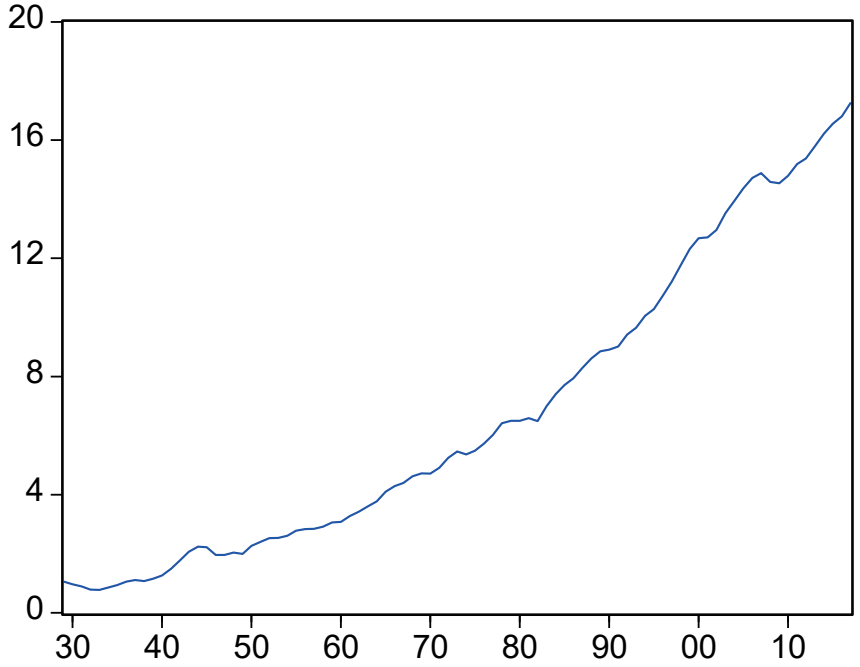

Figure 6.1 US Real GDP 1929 – 2017 (Trillions US Dollars)

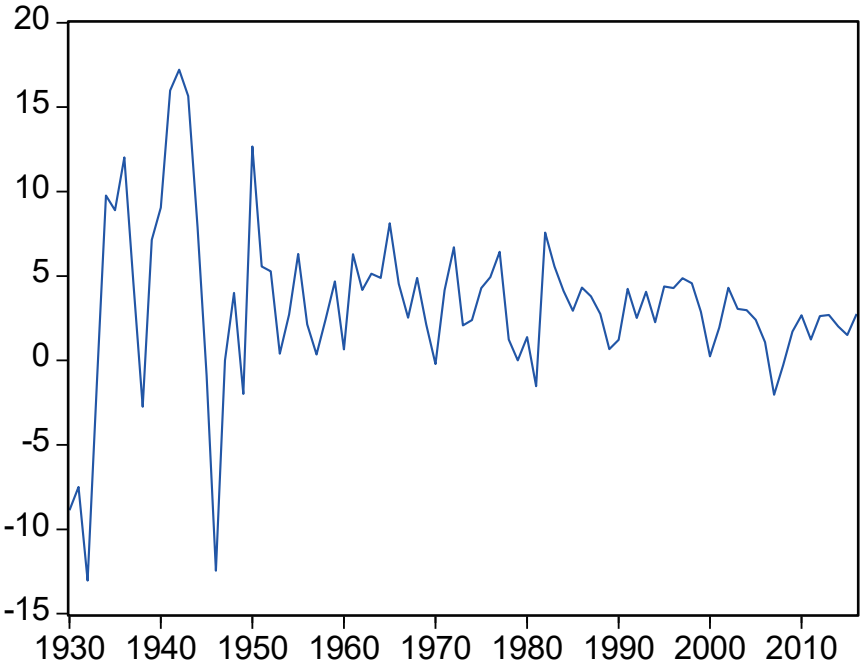

Figure 6.2 Growth of US Real GDP 1930 - 2016

A better comparison of GD and GR is shown in Figures 6.3 and 6.4. The growth of US output fluctuated much more widely in the earlier period, between -15 and +15 p.ercent.

In Figure 4 the Growth rate varied much less than the earlier period, between -2 and +2 percent within 12 years. The recovery in the latter period was quick but not significant to reduce the unemployment very quickly.

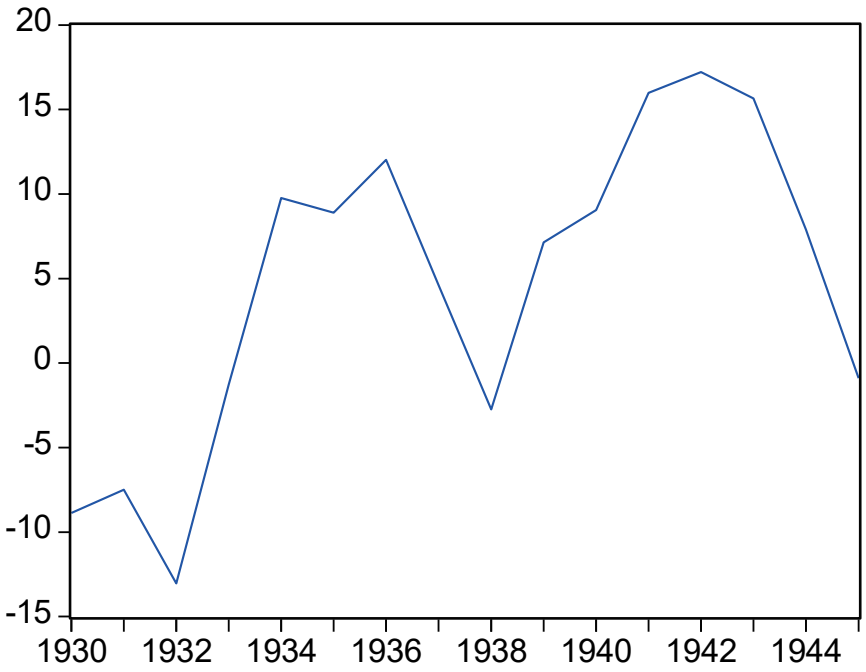

Figure 6.3 Growth of US Real GDP 1930 -1945

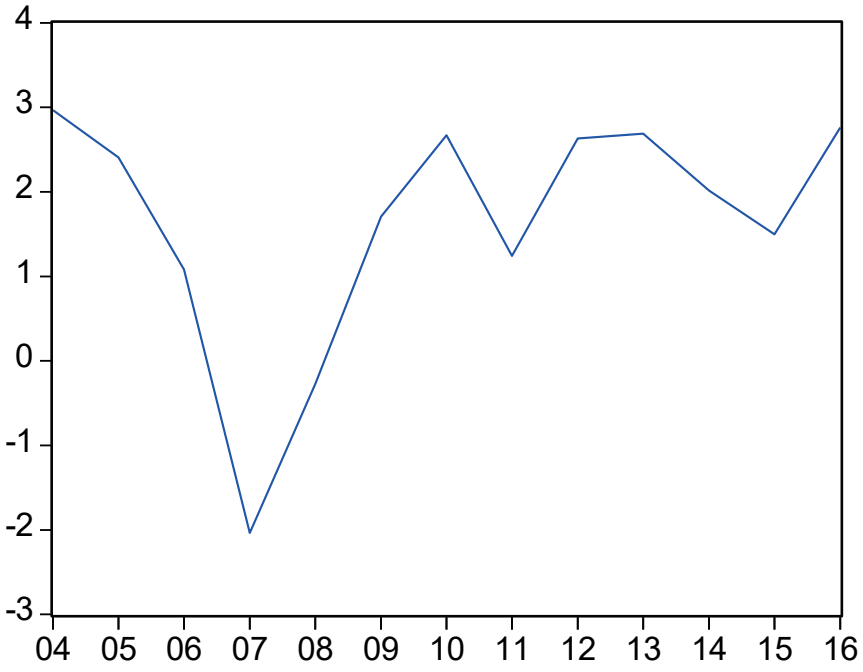

Figure 6.4 Growth of US Real GDP 2004 – 2016

It might be argued that the recovery from 2008 could have been quicker if policy makers learnt from t could have been quicker if policy makers learnt from the 1930s and took aggressive measures. During the 1930, there were two recoveries from the GD. The first was in 1933 when the gold standard was abolished, and the second one in 1939 when industrial production rose as a result of prep aration for the WWII. A premature recovery leads to stagnation because crashes affect people's financ ial position as well as their expectations. Having experienced depressed economic activity, both GD a nd GR, people become very careful about their expenditure. The policy makers need to encourage people to spend. Leaving the gold standard system by increasing inflation, encouraged people to put t heir cash to use before its purchasing power is reduced. This was sufficient to start the recovery. The industrial production rose by 57 percent during between March to July 1933.
During the GR 2008 the Federal Reserve was happy to keep 2 percent inflation targeting but was not willing to go beyond that level. That strategy was sufficient to prevent a complete collapse, similar to 1933, but not enough to maintain a quick sustained recovery. That would have been required to shock the system like going off gold standard had been in 1933.
Something like saying that the Fed would let prices catch up to where they *would* have been if there h adn't been a crash instead of raising rates at the first sign of inflationary pressure."

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The difference between 2008 and 1930s was that in 1939 the worst kind of public works program was implemented. It was called World War II. The fight with fascism made significantly large deficits to be acceptable, and, as a result the economy recovered strongly. However, in 2008 there was no war to force the government to spend a substantial amount of money.

"Think of it as a reverse Goldilocks economy. Things aren't desperate enough to force the government to do more, but they aren't good enough to put everyone to work. It might not be a great depression, but it *is* a long one.
Blanchard and Summers (2007) argue that recoveries from the GR and the GD crises suggest that, ec onomies cannot stabilize automatically without government intervention. Without any intervention, the outcome of financial crisis would have been like the Great Depression. The authors do not suggest the Keynesian recommendations similar to 1960s and 1970s. The economic situation is different. The financial systems are more sophisticated and at a low rate of interest, implementation of monetary policy is difficult. They suggest the followings: First, a mix of aggressive monetary and fiscal policy. Second, conducting monetary should be designed to provide liquidity for the financial institutions. Third, a heavier use of fiscal policy should be exercised, without being concerned about t he public debt. Finally, a more active regulation of financial institutions is required.

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http://www.history.com/topics/great-depression

7 INTERNATIONAL FINANCIAL CRISES IN DEVELOPED AND DEVELOPING ECONOMIES

Introduction

This chapter is mainly concerned with financial crises during the past four decades, beginning in the early 1980s.

The analyses are divided into crises in the developing economies and developed countries. Generally financial crises start from banking and/or currency crises and then spread through the real sector causing recession. Examples are Latin American debt crises, Mexican crises, Asian crises and sub-prime mortgage crises. In all these cases, an initial financial imbalance led to recession and depressed economic activity.

Financial crises in developed economies are more serious because developed financial markets are more complex and sophisticated and have wider global impacts.

Financial crises during the 1980 to 2019 is divided into four decades; 1980s, 1990s, 2000 to 2010 and 2011 to 2020. In each category financial crises in both developed and developing economies are discussed.

7.1 1980S

Latin American Debt Crises

In the 1980s most of the financial crises occurred in the developing economies. The Latin American Debt (LAD) crises is the starting point where several Latin American countries (LAC) failed to service their debts to American and European banks.

In the early 1980s commodity prices, including oil, coffee, gold, were rising rapidly. Commodities are main exports of Latin American countries. At the same time the government of these countries needed funds to finance their social welfare expenditure. As a result of sharp increase in oil prices in the early 1970s, oil exporting countries rising revenues were mostly deposited in European and American banks. These banks were eager to invest these funds in developing countries. In addition, lower interest rates encouraged Latin American and African countries to borrow funds for social welfare programs.

American and European banks became interested to lend to Latin American governments as they assumed that rising exports income are sufficient for the borrowing countries to service their debts. However, rising interest rate in developed counties in the early 1980s, caused recession in the Commodity importing countries and led to a fall in demand for commodities. This development caused a significant drop in LACs' revenues. Furthermore, LAC borrowed at variable interest rate and were faced with rising debt servicing costs. Sachs and Larraín (1993) (SL) show that the ratio of interest payments to export earnings in 1980 -1981 for all Latin American countries rose sharply to around 28 percent. These developments led to a recession and falling living standards in borrowing counties. Mexico was the first country in August 1982 to announce that it will not be able to honour its debt obligations on schedule. After Mexico, several other countries announcing that they also have debt problems. These announcements shocked the lending banks as they were faced with large sums of non-performing loans. Sacks and Larrian (1993) argue that the debt crises in the 1980s, was the first major financial crises after the Great Depression of the 1930s. SL maintain that total net capital flow to LAC, new loans minus repayments of old loans, fell from the peak of 38 billion dollars in 1981 to 20 billion dollars in 1982 and just 3.2 billion dollars in 1983. The authors argue that in 1988 and 1989, net capital flow was negative, that means new loans were less than repayments.

The main borrowers, Mexico, Brazil and Argentina, borrowed funds for development and infrastructure projects. The governments of borrowing counties spent funds on developments and social welfare programs without raising additional taxes. They were not overly concerned about inflationary pressure and repayments. Their economies were booming, and banks were happy to provide loans to the point where Latin American debt quadrupled in seven years. When the world's economy went into recession in the late 1970s the problem surfaced. Interest rates on bond payments rose and LA currencies crashed.

It took years to move out of the crisis. Countries like Brazil and Argentina had to restructure their economies to establish export earning industries instead of relying totally on the sales of commodities. This means resources used in production of commodities have to be transferred to industrial production. That is why it took about 10 years for LAC to move out of debt crises. Before re-structuring their economies, LAC turned to the IMF for a bailout in exchange for pro-market reforms and austerity programs. It also led in 1989 to the novel creation of Brady bonds, which were designed to reduce debt in these countries by converting distressed sovereign debt into a number of different types of bonds. Furthermore, banks could exchange claims on these debts for tradable assets, which enabled them to get the debt off their balance sheets.

Stock Market Crash 1987

After the LAC debt crises in the 1980s, the most memorable instability was the 1987 stock market crash. On the Black Monday, global stock markets crashed, including in the US, where the Dow Jones index lost 508 points or 23% of its value. The causes of crash are still uncertain. Most people blame the growth of programs trading, where computers are programmed to complete large number of stocks trades very rapidly. Several of them were programmed to sell as prices fell, generating self-fulfilling crash.

Yet the crash had how little effect on the world economy. It was a short-lived shock with no serious consequences. The markets continued to fall into November, but by December 1987, they recovered. A few changes were introduced, mainly the introduction of circuit breakers that is able to stop trading.

7.2 1990S

The Asian Financial Crises 1997 – 1999

The Asian financial crises (AFC) includes five so called Asian tigers: Thailand, South Korea, Malaysia, Indonesia and Hong Kong. These countries were growing at high rates in the early 1990s. AFC mainly occurred as a result of banks borrowing in foreign currency and lending excessively to real state borrowers. Furthermore, there were no sound financial regulations regarding borrowing and lending in foreign currency. IFR (2000) argues that more than 15 years after the LAD crisis, history has repeated itself in Asia. As a result of sudden reversal of capital inflow, in July 1997 Thailand's currency, the baht, collapsed when the government was forced into allowing it to float on the open market. Thailand's financial institutions, mainly banks, had huge debt in foreign currency that were not able to pay back, even before the currency collapse. Similarly, to what was experienced in Latin America in the 1980s, the crisis spread across the region, with all the Asian tigers affected. All the five countries experienced recession and high unemployment. However, unlike LAC, Asian crises did not last very long for most countries, other than Indonesia which suffered the greatest shock. All the affected countries experienced positive growth in late 1990s and early 2000s. The reason was that Asian countries had already built export basis. The was no need for restructuring their economies. Exports started rising again as soon as international demand picked up. In addition, they redirected their exports to more prosperous regions such as Middle East and South America.

SL noted that Asian foreign trade was more open with less barriers to trade that LAC. They constructed an openness index[4], 1 – 4, where 4 is more open. The average index for a group of eight LAC was 2.1, whereas the average index for a group of seven Asian countries was 3.1. Furthermore, SL average exports of goods and services as a percentage of GDP was 21 for the LAC group and 56.9 for the Asian group.

IFR (2000) argues the crisis was a surprise to many people. Most Asian governments assumed that they followed the right economic policies, but nonetheless the crisis required a 40 billion US dollar bailout by the IMF. Only one year later, in 1998, a very similar crisis occurred in Russia.

7.3 2000S

Global financial crisis – 2007 to 2008

It was only a decade after the Asian crises that a more serious crisis occurred in the Global financial markets, also called subprime Mortgage Crises (SMC). The SMC in 2007 – 2009 was the biggest financial crises in recent periods. Its impact created a global recession which was the worst since the great depression of the1930s. Because of its intensity it is also known as the great financial crisis (GFC). The crises started in the United States caused by existence of substantial high-risk mortgages loans when interest rates were historically low and real estate prices were rising. Mortgage loans were used to back securities known as collateralised debt obligations (CDOs), which were divided into packages with respect to the degree of default risk.

The high-risk mortgages were packaged by the original mortgage lenders and were bought by investment banks in Europe and the United States. Because of higher risk associated with collateralized debt obligations (CDOs) the rate of return on them was attractive to investors. There was no problem as long as interest rates were low, and mortgage borrowers were able to service their debts. However, the Federal Reserve Bank decided to raise interest rates. By June 2004, housing prices were at their peak. The Federal Reserve Board started raising interest rates to slow down rising real estate prices. The Federal Funds rate was raised six times, reaching 5.25 percent in June 2006. Subsequently in 2006, real estate prices declined, and many mortgage borrowers were not able to meet their obligations.

Defaults on all kinds of debt started to appear. Holders of CDOs included lenders, hedge funds, corporations, pension funds and mutual funds. Many of the purchasers of CDOs were banks. As defaults started to rise, banks had less money available to lend. Those banks with liquidity, feared defaults, and refused to lend to other banks. The financial crises started when interbank lending collapsed. By the end of 2007, the Federal Reserve Bank had to act as a lender of last resort. The crisis had become a viscous circle. Instead of lending easily, banks avoided lending, causing further decline in real estate prices.

The US subprime mortgage crises became the global financial crises because CDOs and other toxic assets were included in the balance sheets of several European financial institutions. The European governments rescued affected financial institutions by nationalizing them helping to provide confidence in the liabilities of institutions. Northern Rock building society in UK and all of the financial institutions in Iceland were nationalized. In the United States, the first casualty was Lehman Brothers which was declared bankrupt in September 2008.

Bear Stearns was an investment bank that survived the Great Depression of the 1930s but was bailed out before the Great Recession. In 1923, it was considered as one of the world's largest investment banks. In April 2007, two of the Bear Stearns hedge funds accumulated 20 billion CDOs that their value declined in September 2006 when housing prices started falling. Bear Stearns was about nearly the second victim of the mortgage crises if the Federal Reserve Bank did not help. The Federal Reserve Bank provided up to $30 billion to Chase Manhattan Bank to purchase Bear for 1 dollar per share. Without the Federal Reserve help, the failure of Bear Stearns could have spread to other financial institutions.

Bear's situation started a fear among banks because they realized that bad debt was included in the portfolio of the most successful financial institutions. This panic caused banking liquidity crises where banks did not trust to lend to other banks.

Eventually the financial crises led to a global recession in 2008 that was the worst since the Great Depression of 1930s. Falling real estate prices, reduced bank lending and evaporation of confidence cause falling real GDP in most of the affected countries. Figure 7.1 shows growth rates of the world and the OECD countries, 1970 – 2017. For the first time in 2008, both growth rates reached negative values.

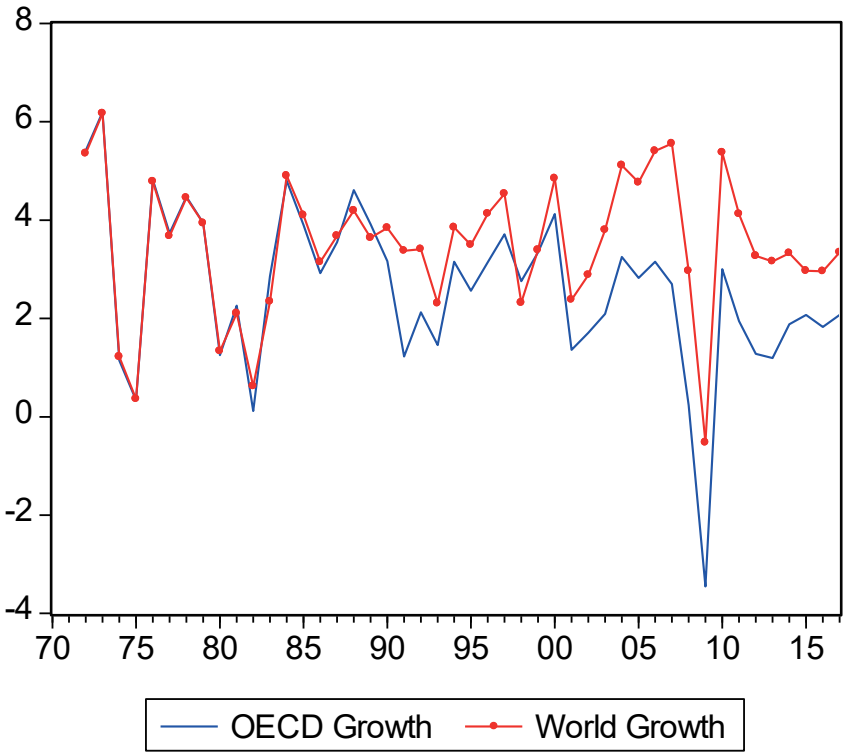

Figure 7.1 Growth Rates 1970 – 2017
This graph was reproduced from Monadjemi, M. and Lodewijks, J. Monetary Policy in Open Economies, published by Bookboon, August 2015

Some other studies blame rising oil prices for contributing to the Great Recession. The monthly average crude oil price reach 145 US dollar per barrel in July 2008. Hamilton (2011) argues that without the significant contribution of the oil price rise in 2008 the subsequent recession would not have occurred in the United States. On the other hand, Killian (2009) maintains that the effects of the oil price rise on the US economy would not have occurred after the experiences of the early 1970s oil price shock. Furthermore, the effects of the oil price rise on inflation and unemployment in oil importing countries were different than that of the early 1970s. The oil price shock in the 1970s caused the aggregate supply curve in oil importing countries to shift toward the left leading to inflation and unemployment. The rising cost of production due to the oil price rise led to the leftward shift of the aggregate supply curve. However, the significant oil price rise in 2007 – 2008 coincided with the global financial crises and recession leading to a fall in aggregate demand offsetting the effects of oil price rise on prices.

European Debt Crises Started 2015

The following section is based on https://en.wikipedia.org/wiki/European_debt_crisis

The eurozone debt crisis that has been taking place in the European Monetary Union (EMU) since the end of 2009. Several eurozone countries such as Greece, Portugal, Ireland, Spain and Cyprus, also called peripheries, were unable to service their government debt or to bail out national banks without the assistance of other eurozone countries, the European Central Bank (ECB), or the International Monetary Fund (IMF).

There are several reasons for debt crisis. In some cases, private debts arising from an excessive mortgage lending were transferred to government debt as a result of banking system bailouts by the government. The structure of the eurozone as a currency union without fiscal union also contributed to the crisis and limited the ability of other European countries to respond. European banks accumulated a significant quantity of peripheries' sovereign debt, such that concerns were expressed regarding the solvency of European banking systems.

In response to solvency of banking system, in early 2010 and thereafter, major European nations provided several financial solutions such as the European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM). The ECB also helped by lowering interest rates offering cheap loans of approximately one trillion euro to maintain liquidity of the European banks. Later in 2012, the ECB announced free unlimited support for all eurozone countries involved in a sovereign state bailout/precautionary program through some yield lowering Outright Monetary Transactions.

Improved economic growth and reduced structural deficits allowed Ireland and Portugal to leave bailout programs in July 2014. Greece and Cyprus both managed to partly regain market access in 2014. Spain did not officially obtain a bailout program. Its rescue package was for a bank recapitalization fund and did not include government's financial assistance.

The debt crisis has had significant depressing economic and employment effects causing unemployment rates in Greece and Spain rising to 27%, and was responsible for depressed economic growth, in the eurozone as well as the entire European Union. Depressed economic activity also contributed to political power in 10 out of 19 eurozone countries.

The European debt crisis was signified during the Great Recession around late 2009, and featured by high government structural deficits and rising debt levels. As a result of the Great Recession, the relatively fragile European banks had suffered large capital losses, governments had to bail out several of their most affected banks with nationalization or recapitalization loans, because of the strong linkage between survival of the financial system and economic stability. At the time, the European Commission released a forecast of a 1.8% in EU real GDP for 2009, leaving a worse outlook for the banks.

In the first few weeks of 2010, there was renewed concern about excessive national debt, with lenders asking ever-higher interest rates from several countries with higher debt levels, budget deficits, and current account deficits. This in turn made it difficult for eighteen eurozone governments to finance further budget deficits and repay or refinance existing government debt, with low economic growth rates, and in countries such as Greece and Portugal a high proportion of debt was in the hands of foreign creditors.

The eurozone member states that were severely affected by the crisis experienced a significant rise in interest rate spreads for government bonds due to investors lack of confidence in their future debt sustainability. Four eurozone member states were rescued by sovereign bailout programs, which were organized jointly by the International Monetary Fund and the European Commission, with additional support at the technical level from the European Central Bank.

To reduce the economic effects of the crisis some European governments attempted on raising taxes and lowering expenditures, which caused social unrest and ongoing debate among economists whom supported larger deficits when economies are depressed. Social unrests were especially in countries large budget deficits and sovereign debts. The lack of confidence caused widening of bond yield spreads between peripheries and other EU member states, mainly Germany.

Although sovereign debt became a serious problem in only a few eurozone countries namely Greece, Ireland and Portugal together having 6% of the eurozone's gross domestic product (GDP),] it created expectations of problem for the whole area causing speculation of further contagion in other European countries and a possible exit of peripheries or break-up of the eurozone. By the end of 2012, the debt crisis forced five out of 17 eurozone countries to seek financial assistance from other nations.

In mid-2012, successful fiscal consolidation and implementation of structural reforms in the countries being most at risk and various policy measures taken by EU leaders and the ECB, financial stability in the eurozone has improved significantly and interest rates have steadily fallen. This improvement significantly reduced the fear of contagion for other eurozone countries. In October 2012 only Greece, Portugal, and Cyprus still faced high long-term interest rates. By early January 2013, successful purchase of Ireland, Spain and Portugal debt across the eurozone, indicated that investors believe that the ECB policy has performed properly. In November 2013 ECB reduced its bank rate to 0.25% to help recovery in the eurozone. As of May 2014, only Greece and Cyprus still required assistance from outside sources.

From 2015 to the present

Global growth rates of income and output have been mediocre in recent times. Even the Chinese economy thatr grew on average at 10% per annum from 1980-2010 is now approaching half that rate of growth. This is quite surprising given all the technology disruptive business activity involving artificial intelligence, blockchain, machine learning and robotics. The 4th industrial revolution does not appear to be visible in the growth and productivity statistics. What is visible is stagnant real wages for workers despite low unemployment. It is claimed that in America the real average wage has about the same purchasing power today as it did 40 years ago. Wage gains there have mostly flowed to the highest-paid tier of workers. See, for example, the article by Jay Shambaugh and Ryan Nunn, Why Wages Aren't Growing in America, Harvard Business Review, October 24, 2017.

Another conundrum is that often stock markets reach dizzy heights but that is also not reflected in increased private investment and productivity growth. There seems a disconnect between financial markets and real economic activity. One issue that is very visible is trade and currency wars among the two largest players in the global economy. That is clearly affecting the real economy.

These places the global economy in a fragile state. Is there another crisis in the wings? Moreover, if there is, are we equipped to adequately respond? Interest rates are very low, even negative. Conventional monetary policy has reached its limits. Two recent articles provide interesting reading in these respects:

Kenneth N. Kuttner, Outside the Box: Unconventional Monetary Policy in the Great Recession and Beyond, *Journal of Economic Perspectives*—Volume 32, Number 4—Fall 2018—Pages 121–146.

and

Giovanni Dell'Ariccia, Pau Rabanal & Damiano Sandri, Unconventional Monetary Policies in the Euro Area, Japan, and the United Kingdom, *Journal of Economic Perspectives*—Volume 32, Number 4—Fall 2018—Pages 147–172

Fiscal policy, especially infrastructure spending, needs to be ready to stimulate an economy. It is not clear what other options are left.

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https://en.wikipedia.org/wiki/European_debt_crisis

8 EUROPEAN MONETARY UNION AND SOVEREIGN DEBT CRISES

8.1 HISTORICAL BACKGROUND

By the end of 2012, the European debt crisis caused five out of 17 member countries to seek external help. This chapter explores this episode of sovereign debt crises.

The debt crisis of the EMU peripheries that started in the mid 2007 was intensified by negative growth rates in the latter parts of the decade and led to some like Greece to fail to honour their international debt obligations. Reinhart and Rogoff (2008) argue that the substantial rise in government debt is mostly due to sharp decline in tax revenue and, in many cases, significant rise in government spending to eradicate the recession. They believe that bank bailout costs are, in many cases, only a small part of the post–financial crisis rise in debt burdens. Dreger and Reimers (2013) argued that as a result of recession after the financial crises of 2008-2009, declining government revenues, together with rising government spending to save venerable financial institutions, led to a sharp rise in public debt in the affected countries. The rapid rise of sovereign debt in Europe threatened the stability of the EMU.

Although the EMU debt crisis started at the periphery, larger countries such as Italy and Spain have also been affected. Dreger and Reimers (2013) examined the nonlinear relationship between the debt-to-GDP ratio and real per-capita GDP growth for members of the EMU as well as a set of industrial countries. The negative impact of the debt-to-GDP ratio is limited to the members of the EMU during periods of non-sustainable sovereign debt. Furthermore, the results of the study suggest that being a member of the EMU may introduce additional risk. Feldstein (2011) and Eichengreen (2007), suggested that creation of a fiscal union with a common liability for national debt may be a reasonable path to resolve the EMU's debt and deficits crises.

Figure 8.1 shows that average sovereign debt in 2008 - 2010 as a percentage of GDP was higher in all of the 12 members of the EMU except Belgium, Finland and Spain. This rise is partly attributed to governments responding to the 2007 - 2009 financial crises. In general, high budget deficits coupled with low economic growth inside the straight jacket of a monetary union has been blamed for the rising sovereign debt of the EMU periphery members particularly, Greece, Portugal, Spain and Italy.

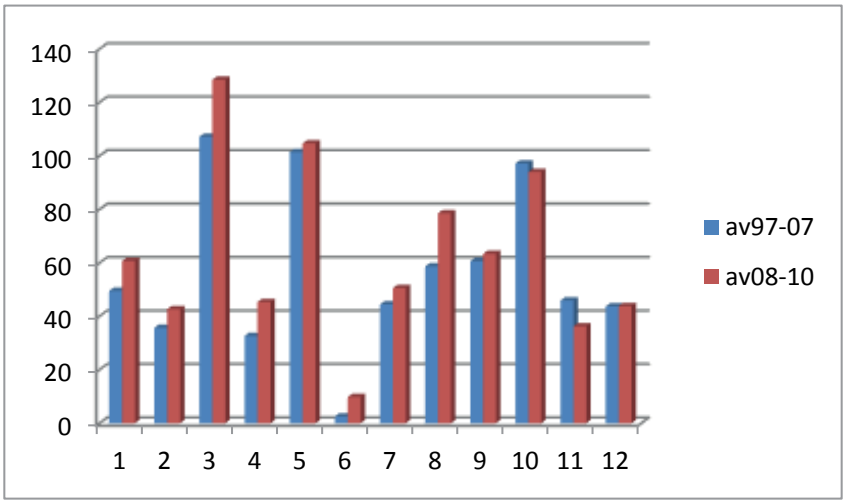

Figure 8.1: Average Government Debt Ratios in 12 EMU members

On the x axis numbers 1 to 12 refer to France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Austria, Belgium, Finland and Spain respectively. This graph is reproduced from Monadjemi and Lodewijks [2014].

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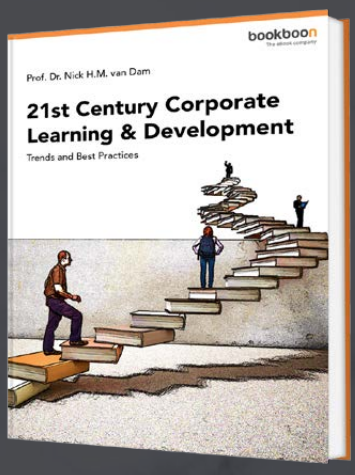

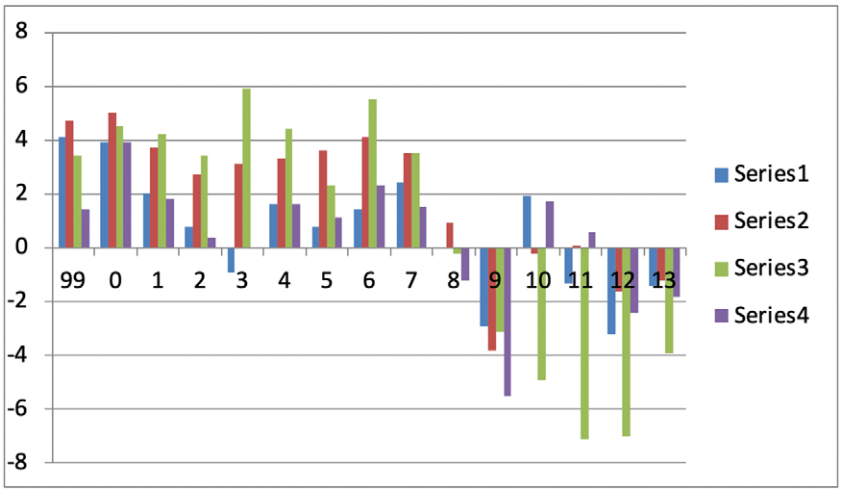

Figure 8.2: Growth Rates of 4 EMU Members

In Figure 8.2 Series1, 2, 3 and 4 are Portugal, Spain, Greece and Italy respectively. On the horizontal axis 0 to 13 refers to 2000 to 2013. The source of data is OECD main economic indicators.

In Figure 8.2 growth rates of 4 EMU peripheries were all negative during the debt crises period 2008 – 2013.

Bird and Kenton (2019) note that the debt crisis started in 2008 with the collapse of Iceland's banking system, and later spread to Portugal, Italy, Ireland, Greece, and Spain in 2009. The crisis was eventually controlled by the financial guarantees of European countries and the IMF, who were concerned with the collapse of the euro and financial contagion. Several Eurozone countries' debts were downgraded by international rating agencies. Greece's debt was, at one point, was marked as junk status. Those countries that received bailout funds were required to maintain austerity measures to slow down the growth of public-sector debt included in of the loan agreements.

The eurozone crisis resulted from the structural problem of the eurozone and a combination of several other factors, such as globalisation of finance; the financial crisis of 2007–08; and international trade imbalances.

In 1992, members of the European Union agreed to limit their budget deficits and government debts at the limits set by the Maastricht Treaty. However, in the early 2000s, some EMU members were failing to stay within their set limits and to cover their excess expenditures. They masked their deficit and debt levels through several techniques, "including inconsistent accounting, off-balance-sheet transactions, and the use of complex currency and credit derivatives structures." From late 2009 on, after Greece's newly elected government

revealed its true indebtedness and budget deficit, fears of sovereign debt defaults in certain European countries developed, causing downgrading of several states government debts. The crisis later spread to Ireland and Portugal, being concerned about "Italy, Spain, and the European banking system, and more fundamental imbalances within the eurozone."

The Maastricht Treaty sets the following economic convergence criterions:

1. The budget deficit not exceeding 3 percent of GDP.
2. The government debt not exceeding 60 percent of GDP.
3. The inflation rate not exceeding 1.5 percent of the average inflation rate of the three lowest inflation countries in the union.
4. The long-term interest rate not more than 3 percent of the average interest rate of the three lowest inflation rates in the union.

The above criterions are required for gradual convergence to the EMU. In addition, a country cannot become a member unless it has maintained a minimum of two years in the European Exchange Rate Mechanism (EMS), where that county's currency has kept limited deviation from the target rate against the euro.

Greece's under-reporting was exposed by a revision of the forecast for the 2009 budget deficit from "6–8%" of GDP (no more than 3% by the above criterions) to 12.7%, as soon as the new government was elected. Wide upwards revision of budget deficit forecasts was not only for Greece, it happens in other countries too. In Greece, the low ("6–8%") forecast was reported until very late, obviously not being accurate.

8.2 EVOLUTION OF THE CRISIS

The 2012 annual budget deficit and public debt both relative to GDP, for all countries and UK is presented in Figure 8.3. In the euro zone, the following numbers of countries were: SGP-limit compliant (3), Unhealthy (5), Critical (8), and Unsustainable (1). In 2012, three years after the exposure to the debt crises, still one country, Greece, remains in an unsustainable position and eight others in a critical situation.

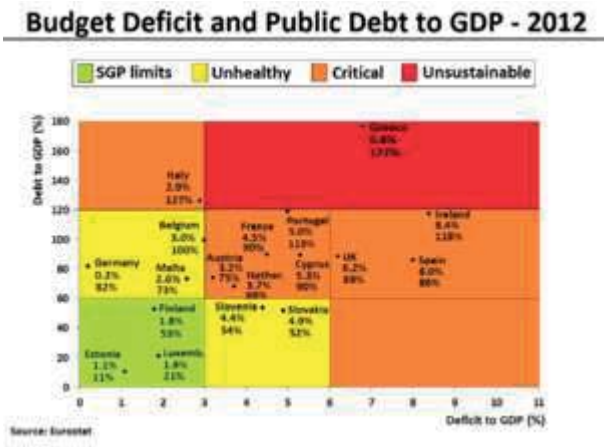

Figure 8.3

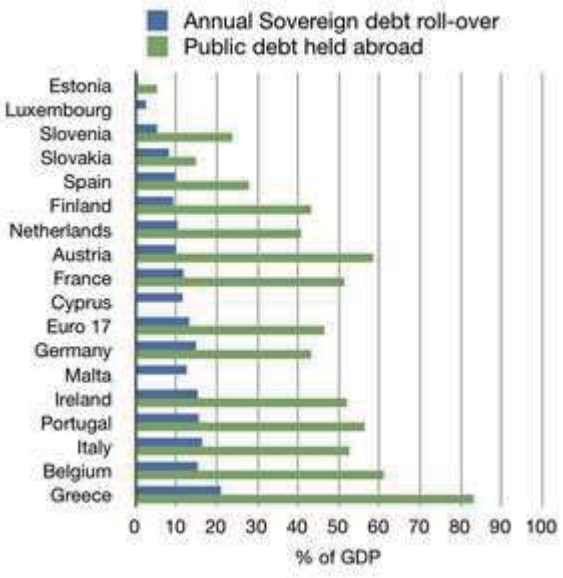

Figure 8.4

This graph is reproduced https://en.wikipedia.org/wiki/European_debt_crisis

In Figure 8.4, annual sovereign debt roll-over and public debt held abroad both as a percentage of GDP are presented. In 7 of the countries shown Figure 8.3, debt held abroad percentages of GDP were 50 or higher. Greece had the highest percentage followed by Austria and Belgium.

The European debt crisis was exposed almost at the time of the Great Recession about late 2009, and was featured by high government structural deficits and rising debt levels. As a result of the negative effects of the Great Recession, the relatively fragile banking sector experienced large capital losses, causing most states in Europe to bail out several of their banks with some recapitalization loans, to support their survival for the financial stability of the economy. In January 2009, a group of 10 European banks already applied for a

bailout. At the time, the European Commission announced a forecast of a 1.8% decline in EU aggregate output for 2009, providing a worse outlook for the banks. The main reasons for the four sovereign debt crises erupting in Europe were reportedly a mix of: weak actual and potential growth of output; competitive weakness; Great recession and large pre-existing debt-to GDP ratios caused by generous social security benefits.

In the early 2010, there was renewed concern about excessive national debt, with lenders asking ever-higher interest rates from several countries with elevated debt levels, deficits, and current account deficits. This in turn added pressure on four of the eighteen euro zone governments to finance more budget deficits and repay or refinance their existing government debt, particularly with low economic growth, and when a high proportion of debt was held by foreign creditors, as it was the case for Greece and Portugal.

The member states that were negatively affected by the crisis were confronted by a significant rise in interest rates spreads for government bonds caused by investor concerns regarding their future debt sustainability. Four euro zone countries had to be supported by sovereign bailout programs, which were organized jointly by the International Monetary Fund and the European Commission, with additional help at the technical level from the European Central Bank.

To improve the effects of crisis, some governments decided to raise taxes and reduce expenditures, which caused social unrest and significant oppositions, from those whom recommended larger budget deficits when economies are depressed. Particularly in countries where budget deficits and sovereign debts have risen sharply, confidence evaporated causing wider bond yield spreads and risk insurance on sovereign debt crises between these countries and other EU member states, mainly Germany. "By the end of 2011, Germany was estimated to have made more than €9 billion out of the crisis as investors flocked to be safer but near zero interest rate German federal government bonds." By July 2012, Netherlands, Austria, and Finland also gained from near zero or lower interest rates. While Switzerland equally benefited from lower interest rates, the crisis also damaged its exports due to strength of the Swiss franc as a result of substantial capital inflow. In September 2011, the Swiss National Bank(SNB) announced that "it will no longer tolerate a euro-franc exchange rate below the minimum rate of 1.20 francs", causing weaker Swiss franc. This was the largest SNB Swiss intervention since 1978.

Despite sovereign debt having risen seriously in only a few euro zone countries, mainly Greece, Ireland and Portugal that together account for 6% of the euro zone's gross domestic product (GDP), it has created fear that leading to contagion of other European countries and a possible break down of the EMU. In total, by the end of 2012, the debt crisis caused five out of 17 member countries to seek external help.

In mid-2012, due to successful fiscal consolidation and implementation of structural reforms in the countries being most at risk and various policy measures taken by EU leaders and the ECB, financial stability in the euro zone has improved significantly, and interest rates have steadily fallen. This has also greatly diminished contagion risk for other euro zone countries. As of October 2012, only 3 out of 17 euro zone countries, namely Greece, Portugal, and Cyprus still battled with long-term interest rates above 6%. By early January 2013, successful sovereign debt auctions across the euro zone but most importantly in Ireland, Spain, and Portugal, shows investors believe the ECB-backstop has worked. In November 2013, ECB lowered its bank rate to merely 0.25% to aid recovery in the euro zone. As of May 2014, just two countries (Greece and Cyprus) still needed help from external sources.

The Current Situation: $200 trillion in global debt

The Organization for Economic Co-operation and Development (OECD) in September 2019 warned that almost $200 trillion in public and private debt could be the catalyst for another global economic crisis if trust in government and financial institutions deteriorates further. The destruction of trust following the global financial crisis (GFC) had contributed to the rise of crypto currencies, which themselves were exacerbating the globe's economic risks.

The OECD is forecasting global economic growth to edge down to 3.3 per cent over 2019, partly in response to the US-China trade war and the fallout of the Brexit debate in Britain and Europe. In its annual report into key issues facing businesses and the financial sector, the Paris-based think-tank said governments had invested huge amounts of political capital and public finances into rebuilding the trust destroyed across the financial sector by the GFC in 2008.

But the financial sector had undermined trust in itself. Low interest rates and non-traditional efforts by central banks to boost economies now meant public debt stood at $US64 trillion ($93 trillion) while the private sector's debt was at a record high $US70 trillion. A decade after "excessive debt" in the housing market brought the global economy to its knees, the OECD said even more debt today could precipitate a loss of trust in financial and political institutions. "Should global economic growth and credit conditions continue to deteriorate, a new bout of financial stress could erupt, the financial markets could become more vulnerable to episodes of contagion," it said. "These effects could be particularly detrimental to trust in intermediaries, such as public pension funds and defined contribution funds, as negative impacts to post-retirement benefits or increases in mandatory contributions could raise societal concerns about the long-term viability of existing pension frameworks."

The OECD (2019) noted that while interest rates on all types of debt remained remarkably low, a breakdown in trust in the global economy could see those rates blow out. "In turn, this could raise the price of debt across all domestic issuers, including local governments, corporates, and households," it said. The organization found that crypto currencies had developed after the GFC because of the fall in trust in traditional forms of banking and financial services. But those were at risk if trust in them also ebbed.

"Moreover, rising volatility and uncertainty could augment the impact of future flash crashes that aggravate selling pressures across multiple markets," it said. "Increased risk aversion could extract liquidity from at least some crypto-asset markets and impose real losses to end users."

Global debt issues are still at the forefront of concern and this has now gone beyond the problems of the European Monetary Union. It raises issues about whether fiscal policy now has the scope to stimulate economies further as any tax cuts may be used to reduce private debt obligations, rather than stimulate spending. Perhaps the best option is to invest in infrastructure where the social return exceeds the cost of borrowing. In an environment of very low interest rates it also suggests that non-conventional monetary policy may play a more significant role.

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9 EVALUATION OF REFORMS POST-FINANCIAL CRISES

The global financial crises 2007 – 2009 were followed by the Great Recession that was the worst after the Great Depression of 1930s. These developments left significant long-lasting depressing effects on growth and employment of affected countries. Governments of affected countries reacted differently to the financial crises. Some like Lehman Brothers were left to fail, Bear Stearns was purchased by Chase Manhattan, The European financial institutions such as Northern Rock in UK and most of the banks in Iceland were nationalized. The central banks including US Federal Reserve Bank and Bank of England provided ample liquidity for the financial institutions and lowered the interest rate to near zero. Interest rates in a few countries in Europe, including Sweden and Denmark, have been in negative territory. As it stands, 10-year sovereign bonds in Belgium, Germany, France and Japan to name a few are trading with a negative rate, although, there many less economically developed countries also facing the same inversion (see https://smallcaps.com.au/negative-interest-rates-become-new-norm-global-economy/).

9.1 REGULATORY REFORMS

Duffie (2016) offers a brief evaluation of the post-crisis regulatory reform of the financial system, the most significant re-regulation of "banking and financial markets since the U.S. "New Deal" reforms conducted during the Great Depression." Duffie argues that towards the end of 2007, the real gross domestic products of the United States and the Euro area era both declined by about 4%. The depressing effect on Japanese economy was even harder. The Eurozone area was confronted with further by the sovereign debt crises.

Central bankers and finance ministers around the world instructed financial regulators to reintroduce regulations on a grand scale. These reforms were well overdue. Many of the global largest financial institutions had practised unsafe levels of risk by exploiting weak solvency regulations in derivatives and securitization markets.

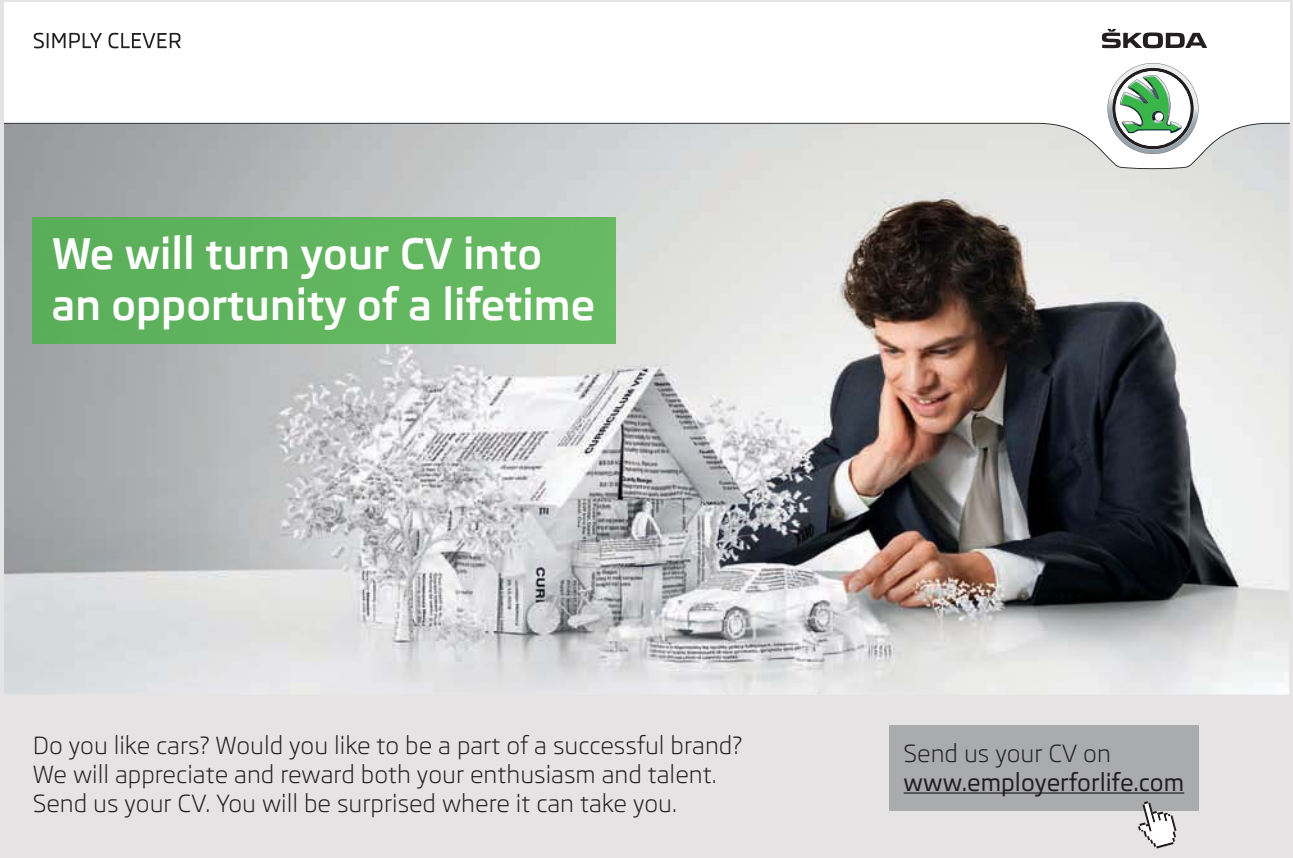
In the United States, the most toxic financial institutions were investment banks that raised funds with run-prone wholesale short-term financing of their securities. A large portion of this funding was obtained from unstable money market mutual funds. "A substantial amount of this money-fund liquidity was arranged in the overnight repo market, which was discovered by regulators to rely precariously on two U.S. clearing banks for trillions of dollars of intra-day credit. The core plumbing of American securities financing markets was a model of disrepair."

Just before the Great Financial Crisis of 2007-2009, the biggest sources of risk to the financial system were poorly supervising, excessively approving residential loans and accumulating risky peripheral European sovereign debt.

Macroprudential regulation, however, is mainly concerned with the resiliency of the financial system to shocks originating from inside or outside. In the words of Tucker (2014), "Overall, the test is whether the reforms can increase the resilience of the system as a whole, reduce contagion when trouble hits, and mitigate the pro-cyclicality of financial conditions."

Duffie (2016) identifies the following regulatory elements proposed by for each of the G20 nations, by the Financial Stability Board (FSB):

"1. Making financial institutions more resilient.
2. Ending "too-big-to-fail."
3. Making derivatives markets safer.
4. Transforming shadow banking."



The author argues that at this point, only the first of these core elements of the reform, "making financial institutions more resilient," can be considered as a clear success, given that more work in this area is required.

9.2 SUCCESS OF REGULATIONS AND REFORMS

Most of the regulations and reforms after the financial crises occurred mainly in Europe and the United States where financial institutions were severely affected.

Bonds and Loans (2017) suggests that recently banks are heavily regulated, after "the introduction of The Dodd-Frank Act, the Volcker rule, and the Foreign Account Tax Compliance Act (Fatca) in the U.S., and the Mifid II, Emir, Mifir, and Basel III accords in the EU."

Jonathan Weinberger, Managing Director of Debt Capital Markets at Société Générale, argues that "the regulatory community has completely rethought financial regulations since 2009. In 2010, we saw the first pan-European stress tests and Basel III, both of which were significantly different to prior practice and regulation. Banks globally have considerably increased the quantity and quality of their capital as well as their liquidity buffers, have built significant loss-absorbing buffers in the context of recovery and resolution frameworks, and have been compelled to rethink their risk appetite and therefore their business models as a consequence."

Deffie (2016) argues that, introduction of regulations seems to have paid off, as the Federal Reserve conducted annual stress test on banks, which indicated very positive results for the US banking system. The test showed that the 34 institutions under the test had sufficient capital to endure the two scenarios imposed by regulators — one related to the financial crisis and the other imposing a shallower downturn. Under the simulation, the banks tested "would experience substantial losses." However, in total, the institutions "could continue lending to businesses and households, thanks to the capital built up by the sector following the financial crisis." The tests was the third year the banks have all met the Fed's requirements for health, which means as Mohamed A. El-Erian, Chief Economic Adviser at Allianz, mentioned in the Guardian, "ongoing measures to buttress the global financial system have undoubtedly paid off, especially when it comes to strengthening capital cushions and cleaning up balance sheets in important parts of the banking system".

9.3 THE REGULATORY PROBLEMS

The success of the bank stress test may encourage some people, including US president Donald Trump to support the idea that "excessive regulations" is no longer necessary. Although, the regulations have forced banks to raise their liquidity and control leverage margins in check, some argue that too much regulation has adverse effects the business and ask whether the recent regulatory framework is suitable to prevent another financial crisis.

Edward James, Director at RCQ Associates argues that "the new regulations have put pressure on profits, mostly because it hiked the cost of business for banks" which, in turn, could pose a threat to the stability of the financial institutions in general. Also, Andrew Breach, Global Financial Services Practice at Hoggett Bowers, maintains that "excessive regulations" might prevent banks from efficiently providing a link between borrowers and lenders.

In 2013 (even before the full set of new regulations was in place) the six largest US banks spent an estimated US$70.2bn on regulatory compliance, doubling the US$34.7bn they spent in 2007, according to data compiled by Duffie in his report

"As one financial actor's costs change – for example, because of regulatory pressures – the market typically responds by shifting the useful activity to another person or place. The shorthand is 'shadow banking,' but what is lost in that static phrase is that the actors performing the economically useful activities change over time. Whether the result is the best mix of risk reduction, consumer choice, and fostering economic growth, it has to be constantly re-evaluated as the economy evolves."

It is important to understand, especially now, as the debate shifts to whether or not the current regulations are still needed, that the current framework in place might not be enough to prevent another crisis. Weinberger maintains the argument that, while another crisis can always occur, it will vary from institution to institution from region to region, depending on the type of internal "risk models" used by each organization.

Ten years on from 2007, and with the global economy and financial institutions stable, the public debate has changed to whether or not these regulations should be replaced by a more liberal approach.

But while rules need to be reviewed and adapted to meet the requirements and conditions of the time; it would be dangerous and short-sighted to simply ignore or dispose of the existing frameworks. "The considerations arising from regulation tend to be strategic – as I said before, regulation is a key driver of whether businesses are viable – and as such is hugely important," Weinberger concluded.

9.4 MONETARY POLICY REFORMS

Monetary policy is generally more effective to control inflation than reversing down-turn and recession. The ineffectiveness of monetary policy in deep recession was initially advocated by John Maynard Keynes in 1936. Keynes named this situation liquidity trap with at a very low rate of interest, additional expansionary monetary policy leave interest rates unchanged, and hence no effect on output and employment. In recent periods monetary policy ineffectiveness was observed in Japan in 1990. In the 1970s, Japan's gross national product (GNP) was the second highest in the world, after the United States and, by the late 1980s, ranked first in GNP per capita worldwide. But all of that changed in the Lost Decade of 1990s when its economy stagnated. Most economic crises generally follow an economic boom where assets valuations do not reflect reality. Japan's lost decade was mainly caused by speculation during the boom period. Record-low interest rates led to stock market and real estate speculation that sent valuations soaring throughout the 1980s.

Knowing that the bubbles are was unsustainable, Japan's Finance Ministry increased interest rates to calm down the speculation. This action very quickly caused a stock market crash and debt crisis, as borrowers failed to make payments on many loans that were backed by falling asset prices. Finally, the problem created a banking crisis that led to amalgamations and bailouts of the banks by the government.

After the initial economic shock, Japan's economy was sent into its now-infamous lost decade, where economic expansion halted for more than ten years. The country experienced low growth and deflation during this time, while the Japanese stock markets hovered near record lows. The property market never fully returned to its pre-boom levels.

Economist Paul Krugman blames the lost decade on consumers and companies that saved too much and caused the economy to slow. Other economists point blame at the country's aging population demographic or its monetary policy — or both — for the decline. In particular, the slow response of the Bank of Japan (BOJ) to intervene in the marketplace may have exacerbated the problem. The reality is that many of these factors may have contributed to the lost decade.

Following the crisis, Japanese citizens started saving more and spending less, which had an adverse effect on the economy. "This development led to deflationary pressures that encouraged consumers to further hoard money, which resulted in a deflationary spiral."

The Bank of Japan reduced the policy rate to 0.25 percent in September 1998, reaching a stage where the conventional monetary policy of interest rate setting had been almost exhausted. and Japan's economy was confronted with the "zero lower bound on nominal interest rates." However, prices and output did not respond. In this situation, the Bank of Japan decided to conduct various forms of unconventional monetary policy measures. Many people know about expressions such as "zero interest rate policy," "quantitative easing," "credit easing," and "forward guidance." These are terminologies for unconventional monetary policy conducted by central banks in the United States and Europe to defeat the global financial crisis. Most of these policy measures were already implemented in by the Bank of Japan in response to the 15 years of deflation since the latter half of the 1990s. The Japanese reaction to financial crises prevented Japan's economy from falling into a deflationary spiral of continuing rapid economic deterioration and considerable deflation.

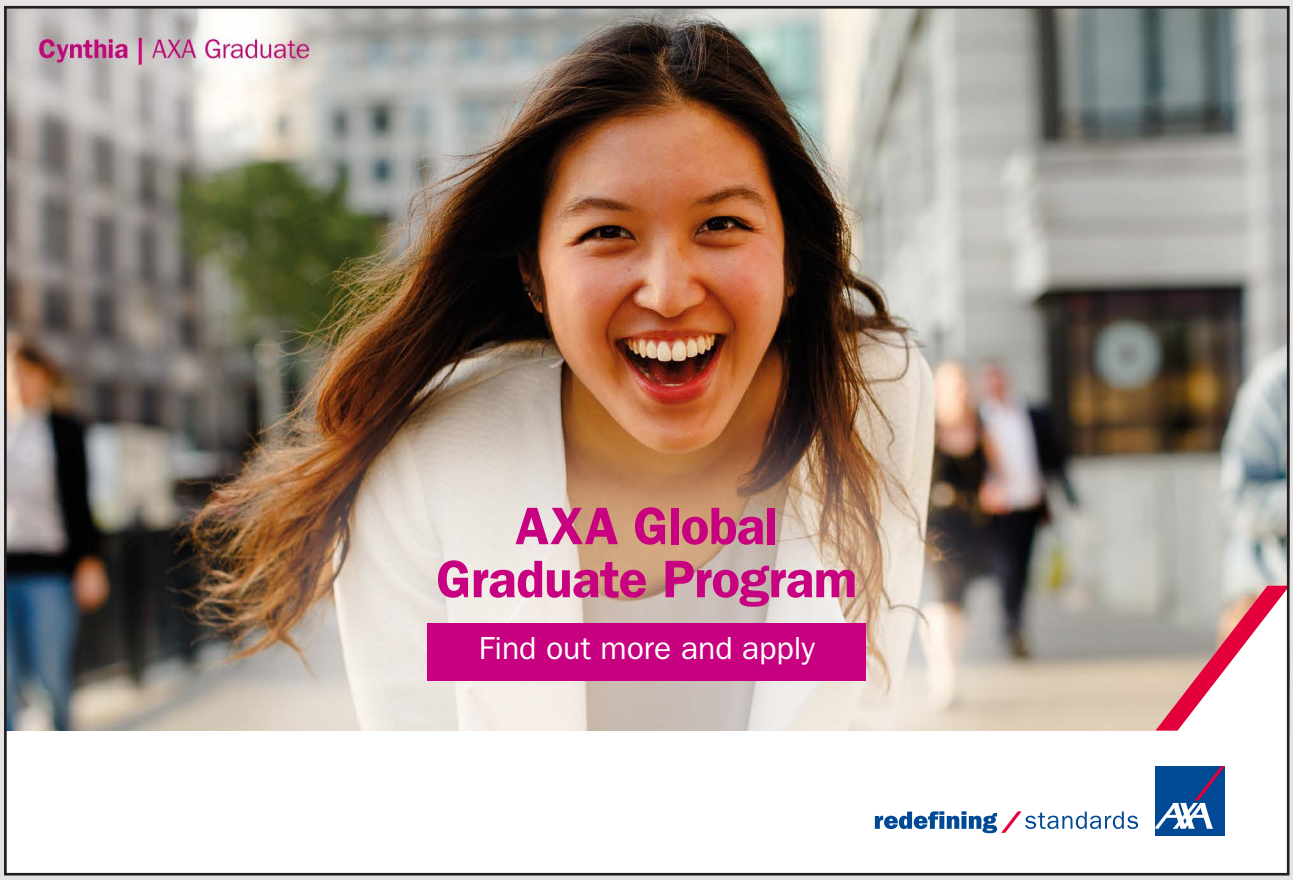
The Japanese experience taught European and American central banks, at the time of financial crises characterized by shortage of liquidity, large-scale liquidity provision by the central banks had the effect of preventing financial institutions' anxiety about liquidity and avoiding a severe credit contraction. One of the important messages that came out of financial crises concerns how lender of last resort function of the central banks, by provision of liquidity, can help maintaining the stability of the financial system.

During financial crises 2008, from immediately after the collapse of Lehman Brothers, central banks in US and Europe supplied large amounts of liquidity. The past policies exercised by the central bank of Japan, not only contributed to maintaining the stability of the financial systems, but also helped the economy by providing accommodative financial

conditions. "In fact, Japan's long-term interest rates remained at a low level in the range of 1-2 percent throughout most of the 2000s. Real GDP grew at an annual average rate of 1.5 percent between 2000 and 2007. In this manner, Japan's economy avoided falling into a deflationary spiral."

Unconventional monetary policy was conducted after the 2008 financial crises. As mentioned earlier, the problem with conventional monetary tools in periods of deep recession or economic crisis is that they become limited in their usefulness. Nominal interest rates are effectively near zero and cannot fall further. Open market operations through government securities market doesn't work since private holders are unwilling to sell them at the time of uncertainties. Under this situation, instead of buying government securities, the central bank can purchase other securities. This is often referred to as quantitative easing (QE). The types of securities purchased during QE are normally bonds or debt instruments issued by financial institutions such as mortgage-backed securities (MBS).

If the usual QE is unsuccessful, a central bank can take the more unconventional strategy of actively purchasing shares of stocks on the open market." During the years after the financial crisis, central banks around the world did, in fact, engage in equity markets to some degree."



The central bank may also signal its intentions to maintain interest rates low for long periods of time in order to boost investor confidence, which can stimulate the overall economic activity.

In general, central banks conduct monetary policy through interest rate targeting, setting bank reserve requirements, and engaging in open market operations with government securities. In periods of severe economic downturn, these instruments cannot help as interest rates approach zero and banks become worried about shortage of liquidity. Conducting open market operations with other tools than government bonds, such as mortgage-backed securities, can help under these circumstances. This strategy is called quantitative easing. When QE is not sufficient, the central bank can enter other markets and signal that it will conduct an expansionary monetary policy for a long period of time.

The following discussion is based on the speech given by Ben Bernanke in 23d October 2009 at the Federal Reserve Bank of Boston 54th Economic Conference, Chatham, Massachusetts

At the Federal Reserve Bank of Boston 54th Economic Conference, Chatham, Massachusetts:

> About a year ago, the global economy faced the most severe financial crisis since the Great Depression. Fortunately, strong and coordinated policy actions avoided a global financial collapse, and since then, assisted by a variety of government programs, financial conditions have improved substantially. Although, the worst financial and economic outcomes was avoided, the adverse effects of the crisis have been very severe, as indicated in the depth of the global recession and the remarkable declines in employment both domestically and abroad. With the financial collapse avoided, now the policymakers should take the opportunity to reduce the probability of the recurrence of any future crises.
>
> Although the crisis was a mixture of events with multiple causes, weaknesses in the risk-management practices of many financial firms, together with insufficient capital and liquidity, were important contributing factors. Many regulators and supervisors did not recognize and correct those weaknesses in advance of the crises. Accordingly, all financial policy makers, including the Federal Reserve, must learn from the experience of the past two years, identified shortcomings to prevent occurrence of another major crises.

9.5 STRENGTHENING REGULATIONS AND GUIDANCE

During the crisis, it was obviously clear that many financial institutions had insufficient capital and liquidity to protect themselves and the financial system as a whole against major financial crises. These problems were noticed in the United States and around the world, requiring an internationally coordinated action. The Federal Reserve has played a major role in the international coordination, participating in "organizations such as the Basel Committee on Bank Supervision and the Financial Stability Board". The Federal Reserve was, actively involved in the Basel Committee's recent decisions to increase capital requirements for trading activities and securitizations, and the FED continue to cooperate with domestic and foreign supervisors to increase "capital requirements for other types of on- and off-balance-sheet exposures."

"By conducting the Supervisory Capital Assessment Program, popularly known as the stress test, U.S. supervisors took a significant step toward ensuring that our banks hold adequate levels of high-quality capital. Led by the Federal Reserve, the program evaluated the capital needs of 19 of the largest U.S. banking organizations by estimating their expected losses and earnings capacity through the end of 2010 under a more-adverse-than-expected macroeconomic scenario." Those firms that didn't qualify to have enough high-quality capital under this program were asked to raise more capital within six months. The results of the assessment test conducted last spring improved investor confidence in the banking system and allowed access the public equity markets for those financial firms. Since January 1, the successful19 "firms have attracted more than $150 billion of incremental Tier 1 common equity, primarily through share issuances, exchanges, and asset sales, increasing their average Tier 1 Common ratios from 5.3 percent at the end of last year to 7.5 percent on June 30 of this year."

Further actions are required to ensure that all banks hold adequate capital. Internationally, the Financial Stability Board has recommended for much stronger capital standards, and the G 20 has committed to establish rules to improve the quantity and quality of bank capital. "The Federal Reserve has supported international efforts to develop capital standards that would be countercyclical. Countercyclical standards would require firms to build larger capital buffers in good times and allow them to be drawn down--but not below prudent levels--during more-stressed periods." The Fed is also working domestically and internationally to prepare capital and prudential requirements that incorporate systemically the importance of large, complex firms whose failure imposes a significant danger to the stability of the financial system. Different include assessing a capital surcharge on these institutions or requiring that a larger share of their capital be held in form of common equity. For further

safety, systemically larger financial institutions could be required to issue contingent capital, such as capital note securities (debts) that convert to common equity in times of macroeconomic crises or when losses damage the institution's capital base.

The crisis also signified weaknesses in liquidity management by major financial institution. "Short-term secured funding of long-term, potentially illiquid assets--through repurchase agreements and asset-backed commercial paper conduits, for example--became unavailable or prohibitively costly during the worst phases of the crisis, both here and abroad." Accordingly, the Federal Reserve assisted lead the Basel Committee's principles for effective liquidity risk management, which in the United States are being included into new "interagency guidance" that strongly recommends the importance of rigorous stress testing that insures existence of adequate liquidity buffers. Together with our domestic and international financial regulators, we are also reviewing quantitative standards for liquidity exposures in-line with capital adequacy, with the aim of ensuring that internationally active firms can operate soundly even during periods of severe financial instability. With supervisory encouragement, large domestic and international banking institutions have, already substantially increased their liquidity buffers and capital adequacy.

Furthermore, insufficient capital and inadequate liquidity risk management, damaged compensations at financial institutions and also contributed to the crisis. Compensation, not just at the top end but in the whole institution, should correctly link pay to performance and generate incentives. In particular, compensation policies that encourage, excessive risk-taking can impose risk to safety and soundness. The Federal Reserve recently issued guidance that would require banks to review their compensation plans to ensure that they do not encourage excessive risk-taking, are controlled for risk management, and are supported by strong corporate governance including board-level oversight.[7]

A fundamental element of effective financial regulation is protecting consumers from unfair and deceptive practices. Strong consumer protection helps to safeguard household savings and to provide individuals access to credit on terms that are fair and suitable with their financial needs and resources. In addition, effective consumer protection encourages healthy competition in the financial markets, creates sound lending practices, and improves confidence in the financial system.

The Federal Reserve has pursued several important steps to strengthen the protections provided for consumers and ensure that these protections are effectively sensitive to market changes and emerging risks. The Federal Reserve has started the use of extensive consumer testing to improve the clarity of disclosures, particularly for

mortgages and credit cards. Accordingly, The Fed has established rules providing strong and informative protections for mortgage and credit card borrowers. "For example, last year the Board adopted new regulations under the Home Ownership and Equity Protection Act to better protect consumers with higher-priced mortgages." These rules attempt to strengthen underwriting, limit prepayment penalties, 2and require escrow accounts for property taxes and insurance." The rules also are designed to prevent misinformed mortgage advertisements and unfair practices in real estate appraisals and mortgage servicing. Recently, the Board adopted new credit card rules designed to increase transparency and protect consumers from a variety of unfair and misinformation practices.

An evolving situation, not without global risks

Negative interest rates can potentially damage an economy as it distorts investment decisions. This becomes apparently clear when rates rise and borrowing cannot be serviced. Quantitative easing also has a mixed record of success. If real economic activity is upended by shocks such as trade wars and Brexits then the harmful consequences can only for a time be put-off by monetary policy, conventional or otherwise. Fiscal policy activism may be the only card left to play.

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ENDNOTES

[1] Assume that the only risk of holding foreign currency assets is the risk of change in the exchange rate. The return on 1 dollar invested in foreign currency is the interest rate plus the expected change in exchange rate which can be positive or negative that is;

$r^* + E\Delta e$. The return of 1 dollar invested in domestic currency is r, the rate of interest.

Inflow occurs when $r > r^* + E\Delta$ Capital *e,* that is return in domestic currency is greater than the return in foreign currency. Capital outflow takes place when $r < r^* + E\Delta e$. IPC holds when $\mathbf{r} = r^* + E\Delta e$. When IPC holds the capital market is in equilibrium and there is no incentive for capital movement.

[2] These 7 additional counties are Cyprus, Malta, Stonia, Latvia, Lithuania, Slovakia and Slovenia.

[3] The following material has used the sources available on the web site http://www.history.com/topics/great-depression

[4] The index was estimated by the Word Bank trade regime over 1973 – 1985, based on effective rate of protection, direct trade controls, exports incentives and exchange rate overvaluation.