universität wien

MASTERARBEIT / MASTER'S THESIS

Titel der Master Thesis / Title of the Master's Thesis

„Comparative analysis of economic crises in Singapore, Thailand, Japan and South Korea in 1997-1998 and 2007-2008"

verfasst von / submitted by

Maroš Zeman

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Arts (MA)

Wien, 2016 / Vienna 2016

Studienkennzahl lt. Studienblatt / Postgraduate programme code as it appears on the student record sheet:	A 066 864
Universitätslehrgang lt. Studienblatt / Postgraduate programme as it appears on the student record sheet:	Masterstudium Wirtschaft und Gesellschaft Ostasiens
Betreut von / Supervisor:	Univ.-Prof. Dr. Rüdiger Frank

Curriculum Vitae

Personal Information

Name:	Maroš Zeman
Date of birth:	25.4.1988
Place of birth:	Skalica, Slovakia
Citizenship:	Slovakia
Contact information:	+420 727 939 636
	zeman.maros@gmail.com

Education

University of Vienna, Vienna, Austria

2012 - Present East Asian Economy and Society, Master of Arts

Bratislava International School of Liberal Arts, Bratislava, Slovakia

2009 - 2012 Major Political Science, Minor Philosophy, Bachelor (Bc.)

English - Slovak Bilingual Grammar School of Milan Hodža, Sučany, Slovakia

2004 - 2009 Maturity examination in English, National English proficiency certificate (C1) from History, Biology, IT

Language skills

Slovak:	Native speaker
Czech:	Native speaker
English:	Proficient
Japanese:	Basic
German:	Basic

List of abbreviations

1 000 000 € = 1 million €

1 000 000 000 € = 1 billion €

1 000 000 000 000 € = 1 trillion €

A major (currency) – usually USD

BoJ – Bank of Japan

BoK – Bank of Korea

BoT – Bank of Thailand

ECB – European Central Bank

FED – Federal Reserves, US Central Bank

FOREX – Foreign Exchange

JPY – Japanese yen

KWR – Korean won

MAS – Monetary Authority of Singapore

PBC - People's Bank of China

SGD – Singapore dollar

SINGSTAT – Statistics Singapore

THB – Thai baht

USD – U.S. dollar

List of graphs

List of Tables

Table of Contents

Introduction

Economic crises have existed since the inception of humankind. Such early crises were caused usually by natural factors, such as earthquakes, volcanic eruptions, droughts, or massive floods which destroyed the environment where the people of the past lived, damaging their means of producing food or depriving them of homes or shelters, leading to mass migration, inevitable wars with indigenous populations, and further devastation. As the human civilization progressed, new forms of economic crises eventually appeared. New crises came with the introduction of the modern banking system, valuable notes or papers, the fractional-reserve banking system, and especially the concept of collateralized debt in the 14th century in what is now Italy. As the bank, which was supposed to disburse its creditors at will, issued new money in the form of a long-term debt against collateral, the classic problem of maturity mismatch arose. Such bank ran into serious trouble if a deal turned sour and the collateral was not worth the value of the debt – creditors immediately asked for money, and a classic bank run would have eventually occurred, followed by the default of the institution and eventual contagion to other banks, resulting in a widespread panic. Apart from banking crises, the Dutch tulip craze (or even the East India Company bubble) was a clear example of a valuable asset based mania, which burst as soon as people realized the value of the tulip bulb and enough supply of tulips flooded the market, resulting in a severe crash. The most widespread and best documented crisis to date was the Great Depression of the early 1930s, which was a twin crisis of the banking and the economic sector and which effectively wiped out enormous amounts of wealth, caused massive unemployment and deflation worldwide, and ultimately was among the main causes of World War II.

It is important to say that since the fall of the Bretton Woods system of a gold-backed dollar the occurrence of economic crises increased substantially. The problem of fiat money and debt became more intense in light of increasing globalization and rapidly moving capital flows. The East Asian crisis, also known as the Asian Tigers' crisis, loomed in the late 1990s and was an explicit example of how global market forces, if unregulated, could have self-destructing tendencies. The Great Recession in the USA, a decade after the events of the former crisis, actually proves that if there is a deregulated environment with poor oversight of

the financial sector, the financial markets are capable of self-harm to the extent of a complete meltdown with world-wide consequences.

This thesis includes a comparative analysis of two crises in Asia, namely the 1997 Asian (Tigers') crisis and the contagion that hit Asia as a consequence of the 2007-2008 Great Recession originating in the USA. Officially, the late 1990s Asian crisis originated in Thailand and South Korea, where the opening of capital accounts to huge capital inflows without establishing a prudent oversight regime subsequently created overcapacity problems and speculative real-estate bubbles covered by unsustainable levels of short-term private debt denominated in the US dollar. However, the role of Japan is usually neglected, even though a huge amount of capital flowing to and from the troubled countries was of Japanese origin. This surplus of capital was the consequence of monetary easing because of the bursting of the Japanese property bubble in 1989-1990, the subsequent low-interest rate stimulus policy of the Bank of Japan, and the balance sheet troubles of Japanese companies which prohibited any new loans from being taken out. Singapore, even though not directly hit by financial contagion, was hit by economic turmoil because most its economic partners were suffering due to the widespread economic, financial, and currency crisis contagion. The 2007-2008 Great Recession brought enormous costs to the global world economy and caused a massive destruction of asset values worldwide. Asian nations were certainly not invulnerable to this challenge. Were they able to defend themselves against the tide of the greatest global economic turmoil since the 1930s? Or did they succumb into an even harsher meltdown than a decade before the fall of Lehman Brothers? How did the economic crises in East Asia fare in comparison to the general theories of crises, especially to the crises in the 1990s and the 2000s?[1]

The thesis will create a common analytical framework with the final goal of comparing the two crises that hit East Asia in 1997-8 and 2007-8. This paper will be divided as follows: The first chapter will cover the state of the art of the literature about crises – the standard "anatomy"; the fallacy of policymakers and regulators before the crisis; unsustainable credit growth; the wake-up call and the rapid consequences, including the rapid fall of asset prices, fire-selling of assets by leveraged traders or banks and a subsequent drying up of market liquidity, spilling-over to the real economy by a credit squeeze and the inability of economic actors to roll-over/take another debt, and a potential complete financial,

[1] Main research question of this thesis

economic and monetary meltdown resulting in a possibility of sovereign debt default and widespread virulent contagion infecting other countries within and without the particular region of origin. The second chapter will deal with the application of the analytical framework to an actual case study of the aforementioned countries and the 1997 Asian crisis. The third chapter will cover the effects of the Great Recession on the studied countries, while Discussion will provide a thorough comparative analysis of both crises in light of the analytical framework.

1.0 Literature review

Literature about banking, financial and economic crises is getting more numerous each year, especially since the 1997-8 crisis in Asian developing countries and the 2007 global financial and economic crisis in the USA and later in Europe.

An anatomy of an economic crisis in a state was described in a well-known work A Theory of Systemic Fragility by Hyman Minsky. (Minsky, 1976) According to Minsky, an economic crisis starts with expansion of credit and economic conjunction. Basic assumption why crises happen lays in the volatility in the availability of credit. While during economic conjunction credit is widely available and expanding, supply of credit dries out during recession. The crisis can be described in 6 basic points:

1. Economic conjuncture and increased credit creation;
2. Increase in risk-taking, vast increase of debt and massive rise of prices of financial and housing assets;
3. Situation worsens: there are unsustainably high levels of risk & debt (especially short-term), worsening of economic fundamentals, declining liquidity and increase in number of Ponzi-type and/or other speculative companies, who bet on further the growth of markets;
4. Wake-up call – a not unusual, but unpredictable event, like the bankruptcy of some major financial company, starts the crisis;
5. Financial institutions and banks become stressed due to non-performing loans and defaults, and the subsequent debt-deflation spiral unleashes the process of increase in unemployment and reducing of aggregate demand, forcing prices to be lowered, further increasing unemployment in a vicious cycle.
6. The central bank, as the lender of last resort, is unable to hinder the progress of the debt-deflation spiral and to calm markets down. (Minsky, 1976)

1. As soon as the country's central bank introduces a loose monetary policy and/or a monetary stimulus and it starts to liberalize its economy, the country vastly "benefits from expanded supplies of base money, 'quasi-moneys' which are created from base moneys, and credit supplies — a financial liberalization phase." (Allen R. E., 1999, p. 99) Wolfson (2002) enriched Minsky's original theory by the fact that the country has to open its borders to foreign capital or liberalize its capital account. Scholars generally agree that a significant liberalization of the capital account and a financial deregulation occurred a few years prior to the outbreak of most financial crises during the last 40 years, which wreaked havoc among economies. (Chui & Gai, 2004) (Calvo G. A., 1998) (Rajan, 2011) (Kaminsky & Reinhart, 1999)(Allen, Babus, & Carletti, 2009) (Ffrench-Davis & Ocampo, 2001) (Allen R. E., 1999) This liberalization and deregulation enables a country to be open to foreign capital inflows. Capital inflows usually come from developed countries, especially during the times of recession in the developed world, which is accompanied by a low interest rate policy of the major central bank (usually the Fed). (Allen & Gale, 2007) (Wolfson, 2002) These capital flows are basically money which seeks higher yields than in the country of origin and perceives some emerging markets as worth investing due to a good risk/reward ratio, especially when the country has national currency pegged in some way to USD and domestic money interest rates are higher than in the country of origin. (Allen & Gale, 2007) (Cooper, 2008)(Wolfson, 2002) In such cases traders will enjoy earning money by riding the trend, adding to their position with each respective pullback – up to the point of „irrational exuberance". (Shiller, 2009)

2. As inflows of capital steadily increase, such a high amount of foreign money is prone to destabilizing the domestic economy and creating distortions, especially in stocks and real assets price levels, which become inflated much above the fundamentally feasible level. (Cooper, 2008) (Kindleberger & Aliber, 2005)(Minsky, 1976) (Allen, Babus, & Carletti, 2009) Kaminsky & Reinhart (1999) found that the average rise of stocks before the start of a crisis is 40% p.a. above normal times, while real estate prices also rally. Kindleberger et al. (2005) defined a "bubble" as "an upward price movement over an extended period of fifteen to forty months that then implodes." (Kindleberger & Aliber, 2005, p. 25) Banks become overconfident and tend to expect endless credit availability and constantly high market liquidity. Thus they steadily increase leverage and exposure to risky assets, which would be classified as unfitting for investment under normal, "non-bubble" circumstances. (Minsky,

1976) (Cooper, 2008) (Kindleberger & Aliber, 2005) These inflated-price assets are then used as collateral for new debt, and the cycle repeats.

Massive capital inflows can become a burden in case the state has free-floating currency – the domestic currency increases its value and the economic fundamentals become less desirable due to loss of competitiveness. (Cooper, 2008) Capital inflows are also known to increase current account deficit, which is not used for further development of the country (e.g. building of infrastructure), but mainly for consumption. (Calvo G. A., 1998) Other problems are created when loans are denominated in foreign currency and have a short maturity. (Cooper, 2008) (Wolfson, 2002)

3. & **4**.

The crisis is usually preceded by a general worsening of domestic and intra-regional/international economic fundamentals, which precipitates a possible economic crisis. Fundamentals like exports/imports or manufacturing indices plummet and expose troubles within the domestic economy of the country, such as over-capacity in some economic sector, overleveraged banks, inflated real-estate sector, etc. Investors start to be wary, and as soon as some wake-up call arrives, like bankruptcy of some major domestic bank, a cascade of events starts to wreak havoc within the economy and eventually within the whole region. (Cooper, 2008) (Minsky, 1976) (Wolfson, 2002)

In case of troubles the free-floating domestic currency sharply falls and interest spreads widen, creating a possibility of a liquidity shock. Investors may eventually call on their debts prematurely, while debtors may have severe difficulties in repaying their due, especially due to an increase in the total value of the debt due to currency devaluation, thus creating intense stress for the domestic banking system. (Wolfson, 2002)

5. Foreign investors lose faith in the country's economic viability and start to pull back their (possibly short term and speculative) capital. (Wolfson, 2002) (Minsky, 1976) (Kotz, 2010)(Goldstein, 1998) Capital outflows start to be a significant problem – cheap credit is readily available neither for banks nor for debtors to roll-over their debt. Banks, already under considerable pressure due to widespread non-performing loans, experience further stress due to credit squeeze escalating up to a complete freeze of the interbank market. The problem with liquidity squeeze is that banks are used to run day-to-day operations with as little cash as

possible due to lower yield of liquid assets. (Bhattacharya & Gale, 1987) Banks then tend to borrow and lend liquidity on the interbank market as is needed at the moment.

However, at the times of stress in the banking system, just a very few liquid banks provide liquidity to most others at an exorbitant risk premium, either because they abuse a kind of monopolistic power in order to get the highest yield and/or due to asymmetric information, uncertainty, and/or general disbelief that the other party will be able to pay the loan back. (Acharya, Gale, & Yorulmazer, 2009) (Heider, Hoerova, & Holthausen, 2009) As Gorton (2008) notes, "the difference (between old banking runs in 19-20th century and in modern times) is that modern runs typically involve the drying up of liquidity in the short term capital markets (a wholesale run) instead of or in addition to depositor withdrawals." (Gorton, 2008)(Allen, Babus, & Carletti, 2009, p. 4) With interbank market virtually frozen, banks are forced to liquidate their portfolios in order to provide enough liquid capital to meet regulations. (Cooper, 2008) (Chui & Gai, 2004) (Allen & Gale, 2007) However, selling into a frozen market with enormous spreads – so-called fire-selling of assets – means banks have to bear significant losses. (Rajan, 2011) (Allen & Gale, 2007) Markets, feeling that there is a risk of widespread bank runs, then turn into selling banking and financial stocks, technically destroying the financial sector of the country. This is the moment when the banking crisis spills to the real economy.

Literature about banking crises can be generally divided into two main groups, namely one by Bryant (1980) and Diamond & Dybvig (1983), who claim that banking panics are consequences of debt/obligation and deposit mismatch of maturity, creating at least two equilibria. (Bryant, 1980) (Diamond & Dybvig, 1983)(Chui & Gai, 2004) The first equilibrium is when depositors do not expect a run on the bank and they do not overwhelmingly withdraw cash from the bank. The other equilibrium is when people are scared and take money from the bank in anticipation of a bank run, creating a self-fulfilling prophecy. The reason why such panic is created is called sunspot, an unpredictable event which causes a panic. (Bryant, 1980) (Diamond & Dybvig, 1983) However, as Allen et al. (2009) note, "sunspots are convenient pedagogically but they do not have much predictive power. Since there is no real account of what triggers a crisis, it is difficult to use the theory for any policy analysis." (Allen, Babus, & Carletti, 2009, p. 5) (Allen & Gale, 2007)

The other branch of literature is focused on a business cycle and souring economic fundamentals instead of on ambiguous sunspots. Such studies have been around for quite a long time. As soon as the business cycle in the economy turns sour and the economy slows, the value of assets being held by banks also decreases. Too much value lost means that the

troubled bank will be forced to fire-sell assets and, if the pressure of the withdrawing depositors is too strong, and the bank cannot sell anymore of its portfolio at the moment to meet regulatory standards, it may eventually file for bankruptcy. This means that banking crises are not panic-based, but are based on rather logical and rational expectations of depositors and investors in an economic environment characterized by falling economic fundamentals, a lower return on investment, or even a possibility of a bank default. (Krugman, 1979) (Allen & Gale, 1998) (Chui & Gai, 2004) (Allen, Babus, & Carletti, 2009) (Allen & Gale, 2007)

Due to unavailability of credit companies are unable to roll-over debt. Completely in accordance with Minsky's theory, companies relying on cheap credit, especially speculative, real estate-focused and Ponzi-like companies, show a lacklustre performance and eventually are forced to go bankrupt, which was proven empirically by Dell' Ariccia et al. (Dell'Ariccia, Detragiache, & Rajan, 2008) (Minsky, 1976) Healthy companies also have problems since they are unable to obtain loans to modernize their machinery, and their products become less competitive. All in all, people get fired because of companies' bankruptcy and the softening aggregate demand, creating more bankruptcies and more unemployment in a vicious cycle. Generally, unemployment rises +7% over 4 years, while output falls 9% in 2 years. (Reinhart & Rogoff, 2009, p. 2) The labour conditions, real wages and quality of jobs also fall, while the recovery process "is painfully slow". (Ffrench-Davis & Ocampo, 2001, p. 26)

Meanwhile, assets plummet. On average, stocks fall 55% over 3.5 years since the last peak, while housing prices fall on average by "35% stretched out over six years". (Reinhart & Rogoff, 2009, p. 2) Allen & Gale (1998) claim that the main cost is caused by the high risk of investments and disorderly liquidation of assets. The average cost of a crisis varies within literature, but Chui & Gai (2004) calculated that a 10-20% drop of pre-crisis annual GDP can be observed (Chui & Gai, 2004, p. 57), while Boyd et al. (2005) calculated that the cost on average is 63-302% of real per capita GDP a year before the crisis. (Boyd, Kwak, & Smith, 2005)

6. Capital outflows affect the domestic currency of the unfortunate country, and the central bank is facing a classic dilemma: it either lowers the basic interest rate, which may cause further capital outflows and a fall of currency; or it can set the basic interest much higher in order to prevent capital outflows, but the central bank severely damages the domestic economy. Either way, the central bank is usually unable to calm down the markets.

In case the currency is in a free-float regime, outflows will cause the value of the domestic currency to fall – a serious problem especially if loans are denominated in a foreign currency. In case the domestic currency is pegged to USD (or a similar major currency), speculators deliberately attack the currency by aggressive selling on the FOREX market, usually against USD. The central bank depletes its FOREX reserves while safeguarding the peg and is eventually forced to devalue the currency or completely abandon the peg and introduce the floating regime. (Krugman, 1979) (Allen & Gale, 2007) (Cooper, 2008) (Kindleberger & Aliber, 2005)

A financial and economic crisis can have a dire effect on the country's ability to pay its debt obligations. Since tax revenues dwindle, and a lot of resources have to be paid to provide welfare for an army of unemployed citizens and, at the same time, to bail-out and recapitalize the banking system in order to save it from a complete meltdown, the country starts to experience significantly high fiscal deficits. (Cooper, 2008) (Reinhart & Rogoff, 2009) Government debt rises on average +86% in comparison to the pre-crisis level, based on conservative estimates. (Reinhart & Rogoff, 2009, p. 2) The problem is more profound if the debt is denominated in a foreign currency and the state has to pay loans after currency devaluation. The situation can become so unbearable that the country is forced to default on its sovereign debt. (Allen & Gale, 2007) (Cooper, 2008) (Goldstein, 1998) (Wolfson, 2002)

Investors usually understand that troubles within one country can exacerbate into a regional crisis and the spill-over effect might hurt other countries within the region or even within the globe; it is a so-called contagion phenomenon. Eichengreen et al. (1996) found out that as soon as a crisis happens in one place, there is an increased probability that it will spill over into another place – mainly based on trade linkages between the countries (Eichengreen, Rose, & Wyplosz, 1996) Kindleberger et al. (2005) mention other possible reasons for contagion, like common lender problem (one lender lends money to the region, and, in case of domestic troubles, the lender calls back loans, creating a crisis in the region), cross-market hedging, mutual regional funds, etc. Due to a globalized financial system the change in the price of a commodity (given that it does not change its nature, e.g. gold) is very similar in different countries. Thus a drastic fall of the commodity's price can destroy the economic system of various countries exporting this commodity. The same principle applies to the increase of well-being in one country, which in turn creates an opportunity for other countries to sell their exports. And last but not the least, there is a classic phenomenon known as "herding", when investors simply trade the same way as others in the crowd, exacerbating the

price volatility. (Kindleberger & Aliber, 2005) Another important contagion link might be competitive devaluation – if Country A is forced to devalue the local currency, its exports become much more competitive and thus countries with similar export-based economies (even more countries with similar export-sector mix) have a competitive disadvantage – Country A technically exported its troubles to other countries by devaluating of the currency. (Corsetti, Pesenti, Roubini, & Tille, 1998) Kodres & Pritsker (2002) found out that due to cross-market hedging strategy of investment portfolios and asymmetric information, even countries not directly sharing any risks may experience contagion. (Kodres & Pritsker, 2002) Allen & Gale (2007) described three ways of possible spill-over: contagion from the financial sector to the real economy, contagion from one state to another within a region, and contagion from one state to another out of the problematic region. (Allen & Gale, 2007) Rajan (2011) came with another account of the problem of instability: the distinction between foreign banks and domestic banks. Foreign banks, due to liberalization of the capital account and deregulations, are able to fund the capital account of Country X, which increases the country's liquidity. However, in the dire times of crisis in these entities' home country Y, foreign banks tend to become a major problem, since they suck the liquidity out of Country X in order to provide liquidity to their home bases in Country Y. (Rajan, 2011)

Ffrench-Davis & Ocampo (2001) challenge the overall belief that the aftermath of the crisis is a quick recovery based on the evidence of crises in Latin America and Asia during the 2nd half of the 20th century. The problem is that even though the GDP growth rallies in a few years after the crisis passed, the financial and business conditions are not the same due to the medium- and long-term consequences of the crisis. Ffrench-Davis et al. (2001) explicitly mention that countries after a crisis are set to the path of lower GDP growth due to "lower investment during the crisis, which affects productive capacity", "bankruptcy of firms generates a loss of capacity, as well as a permanent loss of the goodwill, productive and commercial networks and social capital of those firms" and the fact that a severely wounded financial sector takes some time to recover, during which the growth is inevitably lower. (Ffrench-Davis & Ocampo, 2001, p. 25)

A wide array of scholars agree that the costs of effective regulation and oversight are much lower than the cost of a full-blown economic crisis. Lack of regulation and prudence in oversight, combined with loose policies of the capital account and oversupply of cheap money from overseas, are agreed to be behind every known crisis in post-Bretton Woods history of the economic world-system. (Cooper, 2008) (Allen & Gale, 2007) (Ffrench-Davis & Ocampo,

2001) (Chui & Gai, 2004) (Rajan, 2011) Therefore the effective way to defend the economy against a possibility of a crisis is to curb enormous capital flows either into or out of the country in the form of capital controls and possibly to introduce a Tobin tax, since such policies restrict speculative short-term capital from entering/exiting the country too quickly. (Allen, Babus, & Carletti, 2009) (Cooper, 2008) (Wolfson, 2002) This goes hand-in-hand with a reform of domestic and international financial oversight over the system, combined with increased capital requirements for banks and a better interconnectedness of interbank markets. The central bank should also exercise rigorous control over the credit creation process in order to make economic growth sustainable, and in case of a liquidity squeeze it is supposed to provide an injection of cheap capital in order to unfreeze interbank markets. (Allen, Carletti, & Gale, 2009)

Minsky's ultimate argument is that despite the widely held belief that general markets (of goods) are capable of self-repairing, financial markets are inherently capable of creating disturbances by a massive enlargement of available credit in good times and a very fast credit squeeze in bad times which ultimately threaten the very existence of the financial and economic system. (Minsky, 1976) Thus Minsky directly opposes the official doctrine of the Efficient Market Theory. As per this prevalent theory, financial crises should not happen and markets should be able to self-heal – without actually killing the entire system in the process. Cooper (2008) claims that the inherent problem of our economic system is basically using bad models and wrong statistics based on the dysfunctional Efficient Market Theory. "Risk management based on the Efficient Market Hypothesis is like the proverbial chocolate teapot; it works only while not in use. (Cooper, 2008, p. 147)

1.1. Analytical Framework

1.1.1. Interest rate policy of domestic central bank

A central bank is an institution with a sovereign right to decide issues of monetary policy, among other things the basic interest rate which it demands for parking banks' money, thus regulating money and credit creation within the state's economy. Some countries' central banks have also competences regarding financial market oversight.

In case of high growth and increasing inflationary pressures, the central bank increases the interest rate in order to calm the credit creation provided by commercial banks while increasing saving rates. This move will restrict the credit available to economic actors – businesses and households alike. While the increase of the interest rate is rarely popular for debtors due to the fact that their debts become more expensive, it is seen as one of not too many "standard" capabilities to regulate markets and cool an overheating economy – all in order to make growth sustainable and less prone to various economic failures, also known as bubbles.

In case of low, zero, or even negative growth and deflationary pressures the central bank decreases the main interest rate, increases liquidity, or, recently, it releases sets of "alternative" measures, like quantitative easing or collateralized repurchases of assets[2], to "prevent asset prices falling below their fundamental value." (Allen & Gale, 2007, p. 258) The result is an increase in credit creation, since failure to do this would create a damaging crisis due to a premature liquidation of assets, or a negative asset bubble. (Allen & Gale, 2007) (Cooper, 2008) Since the interest rate is small, it is less economically viable for commercial banks to park money in the central bank overnight; therefore, banks lend money to as many economic actors as possible – for a lower interest rate. Due to a phenomenon called fractional reserve banking, private banks issue such loans to creditors which have a

[2] *"The essential idea behind the policy ... is that the central bank enters into a repurchase agreement (or a collateralized loan) with the representative bank, whereby the bank sells some of its assets to the central bank at date 1 in exchange for money and buys them back for the same price at date 2. By providing liquidity in this way, the central bank ensures that the representative bank does not suffer a loss by liquidating its holdings of the risky asset prematurely."* (Allen & Gale, 2007, p. 256)

much higher value than the actual amount of capital deposited in the bank. It is a widely known truth that banks have a ratio of debts-to-equity of about 10-15:1. (FDIC, 2014) Banks create money and lend it to economic agents, either to private consumers or to companies. The growth of money circulating in the system is known in financial terms as M2 & M3 money supply growth, or, as Cooper suggests, it should be called "debt supply growth". (Cooper, 2008, p. 23) It is a job of central banks to regulate this private issue of debt via raising/lowering of the base interest rate. Lowering of basic interest rates is accompanied by a decrease in price of the local currency connected with lower demand for poorly yielding assets. Lower currency value and increased credit creation subsequently create inflation of prices. Asset prices also inflate due to the expectation of higher commercial returns – banks lend more money to companies and people, who spend more money, companies increase their profits and at the same time companies can invest cheaply to increase production. Since it is not viable to have money parked in a standard bank account because of poor yields, the saving rate falls. (Cooper, 2008, p. 118) Credit is more widely available and comes with a cheaper sticker – people use loans to buy more durable goods and houses or flats, driving prices, rents, and inflation up. Cooper argues that as more stimuli are pumped into the economic system via the central bank's channels, the system becomes more fragile, and the final landing becomes even harder. (Cooper, 2008, p. 131)

The criteria researched within this chapter are policies of the central bank, namely domestic basic interest rates introduced in a span of several years before and after the crisis. This is accompanied by domestic savings measured as year-on-year (Y/Y) amount, since there is usually a correlation between increase/decrease of interest rates and increase/decrease of domestic savings.

1.1.2. Low interest rate of USD / other major currency

In the beginning of almost every modern crisis there is a point when a major central bank, like the Federal Reserve System (the Fed), decides to increase the supply of cash in economic system by lowering the basic interest rate in order to withstand domestic problems, increase inflation, support growth of industrial production and services; to generally give a new breath to a stagnating (or recession-hit) economy.

So-called "smart money"[3] then starts to seek higher yields, and money tends to flow to countries where it finds relatively stable, low-risk investment opportunities with highly probable profits. (Moschella, 2010, p. 37) This happened all the time since the fall of the Bretton Woods system and the subsequent adoption of a neo-liberal approach to guiding economies. (Cooper, 2008) (Wolfson, 2002) Large money-owners are happy to provide credit to anyone offering good profit in conjunction with reasonable risk-taking; countries, many times still in their developing phase, are happy to receive huge amounts of capital flows made possible by the Fed's low-interest policy. Since humans are fallible, this cheap credit is not always used for building assets that will help make economic growth sustainable, like building of infrastructure, electrification, roads and highways, airports, refineries, railways, ultra-high-speed internet connection, etc., but rather are invested in speculative assets, like housing and stocks, which offer much higher yields in a shorter time. (Allen & Gale, 2007)

The researched attributes are basic interest rates of the Fed and the Bank of Japan before, during, and after the crisis, in order to determine whether the global economic system had an excessive supply of cheap dollars and/or yen. An interest rate discrepancy between domestic currency's and USD's and YEN's yields will be disclosed to show the motivation of traders/investors to engage in investment or short-term/speculative trade.

1.1.3. Liberalization & deregulation of financial sector

Since the fall of the Bretton Woods system in the 1970s the world has embraced the neoliberal approach to the economic system. The basic assumption of the neoliberal approach is that the "small state" economy is more effective than the welfare-state predecessor of the pre-1970s era. "Smaller state" means the people and companies are more free to make their decisions. The idea of a smaller state also includes less regulation to be applied both to standard industrial companies, but also to the financial system. Broad deregulation of the financial system, internationalization of the financial sector, and a lack of proper supervision create an environment suitable for the formation of asset bubbles: "…deregulated financial institutions in a liberal institutional structure are free to make the speculative loans without which an asset bubble cannot continue to grow." (Kotz, 2010, p. 373) Countries and central

[3] The term "smart money" is commonly used to describe investments by financial institutions, hedge funds, etc. On the other hand, the term "dumb money" describes retail/individual investors and traders.

banks stop being overseers of sustainable growth, rendering themselves mere observers of the status of the economy, unable (due to a lack of proper legislation), incompetent (due to a lack of experts), and ultimately unwilling (due to the pervasive neoliberal ideology of self-repairing free markets) to exert their powers in order to calm down excessive credit creation and the possible volatility of asset prices. Many authors argue that deregulation and financial liberalization are among the main causes of the increased occurrence of various types of economic crises. (Rajan, 2011)(Calvo, 1998)(Chui & Gai, 2004)(Cooper, 2008)(Allen & Gale, 2007)(Allen, Babus, & Carletti, 2009)(Wolfson, 2002)(Minsky, 1976)(Kaminsky & Reinhart, 1999)

Rajan & Gopalan (2011) suggest that in case the country wants to deregulate and/or liberalize the financial system, it needs "the institutional and regulatory environment (to) be fortified before and during the process of liberalisation. Liberalisation in a weak or ineffective regulatory and supervisory environment can be calamitous." (Rajan & Gopalan, 2011, p. 59) Wolfson (2002) argues similarly: "... opening up countries to foreign capital has likely led to increased financial crises." (Wolfson, 2002, pp. 397-398) Yang agrees and adds: "Benefits of free capital mobility to many emerging markets have appeared illusionary. Instead, the swirls of large financial flows brought adverse, and sometimes devastating, effects to the recipients' economies." (Yang, 2001, pp. 175-176) "Premature financial liberalization is the major cause of the financial crisis in many emerging markets at the end of the 20th century." (Yang, 2001, p. 195) And finally Ffrench-Davis & Ocampo: „The opening of the capital account may actually lead emerging economies to import external financial instability, with capital inflows engendering a worsening in macroeconomic fundamentals." (Ffrench-Davis & Ocampo, 2001, p. 26)

The reasons for troubles with deregulation and liberalization are many, but we can pinpoint some of them. Since there is no proper regulation, banks hold very little liquidity, and they invest as much as they can to earn higher profits. Holding minimum liquidity makes them susceptible to sudden liquidity panics and bank runs. (Cooper, 2008) (Allen & Gale, 2007) Without a proper regulation in effect, banks tend to choose riskier projects and also lend to companies and individuals without a prudent check of their payment history, their total indebtedness, and also their ability to pay the loan back. These loans are sold to the client for a collateral, e.g. house or building – in case the client pays, the bank gets hefty profits; in case the client runs out of money, the bank sells the collateral with added value, since it is expected that the value of the collateral will be the same, or higher, with time. (Cooper, 2008)(Chui &

Gai, 2004)(Allen & Gale, 2007) Moreover, banks and companies are prone to borrow in a foreign currency, offering better interest rate in comparison with domestic loans. Thus, banks enjoy the situation after deregulation, asset prices rally, and credit creation massively increases. Ffrench-Davis & Ocampo (2001) mention that "lax or poor prudential regulation and supervision of domestic financial institutions obviously reinforces disequilibria." (Ffrench-Davis & Ocampo, 2001, p. 30) "In other words, it is the market itself that generates incentives for emerging economies to enter a vulnerability zone during the booms." (Ffrench-Davis & Ocampo, 2001, p. 26)

Nevertheless, following the liberalization of the capital account, the problem of capital flows arises. External capital inflows in a liberalized economic system generate positive bubbles, possibly increase the current account deficit, and may heavily inflate prices of speculative assets. On the other hand, capital outflows rapidly destroy the economy. (Allen & Gale, 2007) "Financial markets tend to encourage lax demand policies and exchange rate overvaluation during booms, whereas excessive punishment during crises may actually force authorities to adopt overly contractionary policies (so-called irrational overkill)."(Ffrench-Davis & Ocampo, 2001, p. 26)

Ffrench-Davis & Ocampo (2011), Hausmann (2015), Cooper (2008) and other scholars argue the same way – that it is much more important to create checks and balances during booms (positive cycles), since a well managed credit-increasing phase is always cheaper and creates a less painful landing of the economy than ad-hoc management in case of severe misallocation of resources (bubble) when unsustainable credit creation develops into an actual crisis of huge proportions (negative cycle).(Ffrench-Davis & Ocampo, 2001, pp. 34-35)(Hausmann, 2015)

1.1.4. Foreign capital inflows & Current account deficit

Liberalization of the capital account, internationalization of financial sectors ("... broadly defined as the elimination of barriers to entry and discriminatory treatment of foreign competition, and cross-border provision of financial services." (Rajan & Gopalan, 2011, p. 58)), and relaxation of financial regulations possibly bring severe troubles in relation to the stability of the domestic financial and economic system. It is good to distinguish capital

flows, since not every type of flow is actually harmful for the economy, especially the emerging one.

Yang (2001) separates capital flows into three main categories. Firstly, foreign direct investments have long-term goals and create the actual growth of a real economy. They might take a form of money used to build a factory to produce a new generation of ultra-high-end computer processors at a very competitive price. Investors become whole- or part-owners of the newly created project with the goal to succeed on the domestic and/or international market. Secondly, portfolio investments are short-to-medium term investments which are rather speculative in their nature. They take a form of financial derivatives, short/medium-term loans, or securitized equities. Thirdly, other investments include cash deposits, FOREX speculative options/derivatives (short-term buying of a local currency against some major counterpart), or trade credits and belong to purely speculative capital chasing higher yields than in the country of origin. Thus the regulations, mentioned earlier to be prudently incorporated in the country's financial system, are intended mainly to diminish extreme fluctuations of speculative capital flows to and from the country. (Yang, 2001) (Rajan, 2011)

The problem of speculative capital flows has many layers. Firstly, intense carry-trade related flows increase the value of the local currency – speculators buy the local currency because of higher yields and a high possibility of a further increase in the basic value of the currency. This decreases the country's competitiveness in comparison with its neighbours. In case the currency is pegged to USD or other majors, the central bank has to intervene in the global market in order to relieve the pressure by selling the local currency against the major, as is nowadays the case of the Czech Central Bank (Česká národní banka) selling CZK against EUR to manage the EUR/CZK exchange rate peg at the value of 27 Czech Korunas for one Euro – all in order to maintain competitiveness and to suppress deflationary pressures. Secondly, money flows increase the current account deficit, a strong indicator of the economy's health – the foreign money tends to be used for domestic consumption, which drives up overall inflation, which in the mid-term may not be sustainable. (Allen, Babus, & Carletti, 2009) (Kaminsky & Reinhart, 1999) (Goldstein, 1998) As per Calvo (1998): "The larger is the share of consumption in total expenditure aggregate demand and, in particular, on demand for tradables, the more pronounced will be the damage to the real economy from a fall in the CAD. … The same reduction in aggregate demand for tradables will result in a larger cut in the demand for nontradables, the larger is the share of consumption in the demand for tradables goods." (Calvo, 1998, pp. 3-4) Thirdly, speculative flows tend to go into

speculative assets, like construction, housing, or the stock market with expectations of a quick and handsome profit, distorting the real value of these assets and creating bubbles. (Ffrench-Davis & Ocampo, 2001, pp. 29-30) All these massive capital flows are possible when some major central bank, like the Fed, decreases the interest rate in case of the major country's domestic economic trouble and floods the market with cheap and readily available cash. Ostry et al. (2016) even calculated that "since 1980, there have been about 150 episodes of surges in capital inflows in more than 50 emerging market economies; ... about 20 percent of the time, these episodes end in a financial crisis and many of these crises are associated with large output declines." (Ostry, Loungani, & Furceri, 2016, p. 39)

The attributes researched within this section will be used to determine the nature and use of capital flows in and out of the country; namely current account balance (Kotz, 2010), and government consumption (Chui & Gai, 2004), together with the nature and amount of capital inflows.

1.1.5. Currency Peg and short-term / FOREX denominated debt

Short-term maturity of bonds/debt, especially if denominated in a foreign currency, can create a considerable problem for companies and individuals if the local currency devalues, liquidity dries up, and debtors cannot borrow money anymore. The same applies to sovereign states; Calvo (1998) argues that the researcher has to take a closer look on possible maturity mismatch of country's debt, since short maturity increases likelihood of a possible liquidity panic and subsequent sovereign default. (Calvo G. A., 1998) In case of such a stop (liquidity) crisis there is virtually no-one willing to lend the state or economic actors any money.

During the times of economic hardship, traders on financial markets tend to bet on the depreciation of country's currency. If the currency is in the floating regime, the course of action is pretty straightforward – a trader sells the local currency against some major counterpart, like USD or YEN. If the currency is pegged to USD it becomes trickier – in case of worsening economic fundamentals (either due to macroeconomic problems or strengthening of USD) and intense capital outflows, the central bank tries to defend the

currency peg by direct interventions on FOREX markets. However, a sustained attack of traders on the local currency for a longer period of time will eventually deplete the central bank's foreign exchange reserves, forcing the bank to devalue the currency in order to obtain some breathing space. Traders close their sell positions and win large sums of money, while the loser is the local central bank.

The denomination of loans in foreign currency and their performance are directly intertwined with the local currency's levels. If the state's currency is floating and/or becomes severely devaluated due to economic fundamentals and financial markets pressures, economic actors are expected to pay much more back to creditors in the local currency, and that frequently results in massive defaults on outstanding debts. Debtors are forced to pay their debt (sometimes even prematurely) to creditors in hard currency and that speeds up the process of the outflows of capital, sucks up foreign reserves, and squeezes the liquidity in the system. (Wolfson, 2002) (Allen, Babus, & Carletti, 2009)(Goldstein, 1998) (Galimberti, 2000)

A combination of both cases has consequences of a severe economic and financial crisis connected to a massive devaluation of currency. Since debtors have to pay in US dollars, their debt increases its value by the amount of devaluation and imposes even greater indebtedness, increases non-performing debts, and further forces investors to fire-selling and premature liquidation.

The short-term maturity debt is an important indicator – we can easily see the problem if the short-term debt is too high compared to the external and total debt. Rajan's (2011) suggestion is to study external debt refinancing needs (should be lower than 100% of reserves), and a general suggestion is to study levels of FOREX reserves suggested by Chui & Gai (2004). Foreign exchange reserves indicator and short-term debt to total debt (if available) will paint an image of a possible fragility of a currency in case of a sudden stop crisis or an outright speculative attack.

1.2. Situation before crisis

1.2.1. GDP & Stocks & Speculative Asset Price Levels

The situation before an actual economic and financial crisis can be described as a result of factors described in the previous chapter. Due to a massive amount of cheap and readily available foreign capital flowing in, the country experiences a dramatic increase of GDP and extremely overbought levels of stocks and speculative assets like real estate. Goldstein (1998) argues that asset bubbles are based on an irrational growth of prices without any fundamental reason. Allen et al. (2009) argues that during the starting phase of the bubble an analyst perceives *"an average rise in the price of stocks of about 40% per year above that occurring in normal times. The prices of real estate and other assets also increase significantly."* (Allen, Babus, & Carletti, 2009, p. 24)(Kaminsky & Reinhart, 1999)

Stocks and housing inflations are very important indicators of the economy's overheating and are directly connected to credit expansion. "In many recent cases where asset prices have risen and then collapsed dramatically an expansion in credit following financial liberalization appears to have been an important factor." (Allen & Gale, 2007, p. 235) Due to a low (or even negative) basic interest rate banks will do a lot to have as little cash as regulations permit, and they invest/lend the money in/to anything/anyone at least somehow suitable, often engaging in much riskier investments than they would before the rate cut. (Allen & Gale, 2007) Cooper is less diplomatic in his claim that due to pure greed banks/investors are prone to lending money to the least attractive debtors in order to make the highest profit. "In money markets, as with most debt markets, the way to earn the highest rates of interest is to make loans for the longest possible periods to the lowest quality, least-reliable investors. The pressure for high money market yields therefore encourages fund managers toward a high-risk lending strategy. But this strategy runs into direct conflict with the money market fund's commitment to give back all of the investor's money, plus interest earned, without the risk of losses." (Cooper, 2008, p. 16)

A distortion of the markets is then obvious – assets or stocks go up, regardless of their "junk" status, creating a positive bubble and a possible over-investment/misallocation of

resources in certain sectors. (Allen & Gale, 2007) Therefore, it is important to check whether "credit creation is running substantially ahead of economic growth [because] then that growth is likely itself to be supported by the credit creation, and will not be sustained once the credit expansion ends. Signals of unsustainable credit expansions can be detected directly through the monitoring of lending activity, or indirectly through the behaviour of asset price inflation. Comparing the growth in asset prices and debt with that of the economy generally helps signal problems ahead. Equally, one can observe the stock of debt as a fraction of the size of the economy and the debt service burden as a fraction of the income required to service existing debt." (Cooper, 2008, p. 124)

This cheap credit often goes to sectors which are the most prone to creating future economic troubles. The real estate sector is a very popular choice because it offers a very high profit-to-risk ratio, and the results of investment are visible in a very short time. The inflation of the indices of office space prices and home prices year-on-year (y/y) is a good indication of a possible crisis due to two facts. First, the prices of homes can climb to such a high level that not even the middle class can afford to buy them. In such a situation, a market correction is expectable, and prices may get to levels at which customers are willing to buy again. Second, in case of a sudden decrease of available credit (like an increase in the interest rate by the Fed), the real estate sector, with its long-term investments still in development, starts to signal severe troubles. As Goldstein (1998) notes with regards to 1997 Asian crisis: "…private investment was directed toward either speculative activities (real estate) or industries, where overcapacity was likely to be a problem over the medium term, and when too much public investment is directed toward either over-ambitious infrastructure projects or inefficient government monopolies." (Goldstein, 1998, p. 14) In such a situation a market correction is extremely likely, and foreign investors will try to sell their assets and cash-out the profit, which will lead to an increase in capital outflows out of the country. Another example of not a really productive sector in which cheap money tends to flow is a stock exchange. A strong inflation of stocks, especially of small-to-medium enterprises, is another good indicator of a possible overheating of the economy.

The researched indicators will include change in GDP and change of main stock market index (to check the growing stock market), and real estate price index growth (to check a potential bubble within the sector).

1.2.2. Debt & leverage & exchange rate

Intense capital flow increases the amount of cheap money in the economic system and enables banks to lend more money (increase credit growth) to riskier projects and to use a higher leverage ratio than before. This is an example of a standard herding behaviour. This section will cover indicators such growth of broad money.

Chiu & Gai (2004) along with Cooper (2008) suggest that growth in broad money, M3 money growth, and general credit growth are important indicators of the economic system being flooded with cheap cash. Bank leverage (if available) is an indicator which tells the reader what the banking system's ratio of debt/equity is, e.g. how big a risk they undertake in order to get profit. A spread between lending and deposit rates will also be a matter of research, comparing them with US dollar & Yen yields at the same time.

High speculative capital flows, seeking higher yields and focused on the local floating currency, have a severe effect of an unwelcome strengthening of the domestic currency's exchange rate. Since stronger currency means lower competitiveness, research of exchange rates of X/USD and X/JPY will be conducted, with X being the local domestic currency (e.g. Korean won, etc). (Chui & Gai, 2004)

1.3. The actual economic crisis & its forms

1.3.1. Start of the crisis

The actual start of a financial crisis has its roots in the general fall of fundamentals. Those fundamentals may include a fall of manufacturing, service or composite indices, a strengthening of the domestic currency, a fall in competitiveness in comparison to similar countries, a fall of imports, exports, or demand for some commodity/goods that the country has a high exposure to, and/or over-capacity troubles of a particular sector, etc.

A trigger of a financial crisis can be very variable. Kindleberger & Aliber (2005) name the cause "trivial", while Wolfson (2002) further acknowledges that "A not-unusual event is capable of initiating a financial crisis. These events are surprises in the sense that they cannot be predicted." (Wolfson, 2002, p. 394) Usually it is a bankruptcy or near-bankruptcy (refusal of major creditors to lend more money) of some big player in some industry, e.g. the Long-term Capital Management fund in 1998 (the consequence of the Russian default), WorldCom, Enron, and others combined with the 9/11 attacks were triggers of the 2001-2002 stock market crisis; the well-known example of Lehman Brothers in 2007, etc. A crisis can also be triggered by a suicide of some high-profile figure or even a revelation of shenanigan accounting practices (like Enron 2001). Such an event triggers a herding behaviour of traders and a subsequent fall of stock prices, resulting in capital flows to safe havens, like the US dollar/treasuries, the Japanese Yen (used as a safe haven and a "carry trade" currency), or gold. As was written earlier, speculators trading with borrowed money using high leverage are caught by margin calls and are forced to liquidate their large leveraged positions, forcing the market even lower, until banks are forced to do the same in order to sustain liquidity expectations, and eventually one or more fails to deliver on its promises, filing for bankruptcy and starting a widespread panic and liquidity squeeze. (Kindleberger & Aliber, 2005)(Allen & Gale, 2007, p. 126) (Cooper, 2008)(Allen, Babus, & Carletti, 2009)

The attributes researched within this section will be the exports, imports and the Y/Y % change of manufacturing, industrial and services indices.

1.3.2. Bank, Stocks and Asset crises

Banks are institutions focused on storing the depositors' money and issuing loans to debtors. As a financial intermediary, banks receive the money from depositors (promising them a return of cash plus an interest rate at the given date) and lend the money to companies and individuals for a substantially higher interest rate, which consists of the central bank's interest rate, the basic rate for depositors + the risk premium. This risk premium, in case the loan was paid in time, creates a profit for the issuer. Banks offer depositors a relative safety for their money and the ability to withdraw money anytime and, thanks to the widespread use of debit/credit cards, almost anywhere. Thus the deposited money is considered as a liquid asset.

However, loans, regardless of their nature, are illiquid – most loans are used as a long-term investment. This is a paradox of banks: they have to have enough liquid cash on hand to service the withdrawing depositors anytime, anywhere, while they need to invest another stash of money into illiquid projects with investment horizons counted in years. (Allen & Gale, 2007, p. 59) "This basic conflict between guaranteeing return of capital while also putting that capital at risk is a key channel through which financial instability can be, and recently has been, generated." (Cooper, 2008, p. 17)

During a relative calm on the markets, banks tend to share the debt burden with others – e.g. bank A will issue 1 billion USD in order to finance various companies' or individuals' debts of different quality (or, more precisely, debtors having a different credit rating). These debts are then "packaged" into a derivative, and this derivative is sold on financial markets to other banks. Under normal circumstances it increases flexibility; however, in case of troubles, as was seen during the 2007-2008 mortgage crisis in the USA, the contagion of failed loans quickly spreads throughout the financial system. Just to note, securities and derivatives are often used as collateral for borrowing more money on interbank markets. An example of such a vehicle can be the collateralized debt obligations (CDOs, used in corporate bond markets), sophisticated investment vehicles (SIVs), mortgage-backed securities, and a myriad of other, unregulated financial inventions.

Banks are known to use collateral as a form of insurance against a possible bankruptcy of a debtor. Collaterals can take various forms: most usually a house, a flat, or a building, or technology, cars, or other objects of substantial value. Stocks and other assets are used less frequently as a collateral, while probably the most bizarre collateral ever used consisted of roughly 50 000 cows, which were sold and leased back by China Huishan Dairy Holdings Co. in order to finance itself after a massive stock-buyback scheme depleted the company of cash. (Pham, 2016) The collateral's catch is in one detail: the collateral is expected to keep or even increase its value through the duration of the loan. Banks, therefore, hedge their risk – if the loan is paid in time, the bank grabs the profit; in case of the debtor's default, the bank sells the collateral and then keeps (most or all of) the cash in order to service the debt. However, an economic crisis can effectively dash such expectations, and as soon as the crisis looms and the amount of defaulted loans soars, banks try to sell collaterals in an already depressed market, lowering their market value and thus increasing their losses. (Cooper, 2008) "This process of collateralised lending generates one of the key destabilising forces in financial markets. ... This is exactly the destabilising process that, in the current credit crisis, has caused the failure of some high-profile leveraged hedge funds." (Cooper, 2008, p. 99)

Thus there is a situation where banks are afraid to lend to each other on the interbank market since they are uncertain if the other party can repay the loan in time (or at all), and also they expect to have high needs of liquid cash themselves if the situation gets worse. This situation is called a liquidity shock / liquidity squeeze and in the worst case can turn the incomplete interbank market into a freeze which ends by a massive default of banks. The other side of the coin is the so-called credit squeeze, what is de facto a spill-over of the banking crisis into the real economy – banks stop lending money and even call the debts to be paid prematurely in order to obtain fresh cash. As soon as investors and/or depositors start to have a feeling that a bank could be in trouble, a bank run might occur.

A "standard" bank run is essentially a sudden increase in the number of depositors asking back their cash – a coordination failure between depositors. "A bank promises depositors a fixed payment if they withdraw early. If too many depositors withdraw there is nothing left for those who withdraw late, particularly if the obligations of the bank to early withdrawers are large relative to its liquid reserves. Again there is coordination failure – if a depositor believes that others will withdraw from the bank, it becomes optimal for him to do likewise." (Chui & Gai, 2004, p. 29) Since depositors are concerned about the bank's health, they withdraw all they can as soon as possible due to the fact that they understand that they

may ultimately get nothing. Runs on banks "are not random events but a response of depositors to the arrival of sufficiently negative information on the unfolding economic circumstances. … Yet, crises of confidence will arise in economies, where regulation solves only adverse selection problems." (Allen, Babus, & Carletti, 2009, p. 6) There is no private banking institution in the world which would be able to withstand a bank run for a long time, a sudden and massive increase of the number of depositors withdrawing their money back in cash. Another, modern type of bank run is called "wholesale bank run" and means that the bank in trouble becomes cut off from the interbank market lending, rendering it unable to get enough liquidity. (Gorton, 2008) With regards to liquidity shock, it is good to mention that what matters in a highly volatile price action are "not absolute changes in liquidity demand, but rather changes in liquidity demand relative to the supply of liquidity. If a liquidity shock is large relative to the supply of liquidity there is significant price volatility. This can be true even if the liquidity shock is arbitrarily small." (Allen & Gale, 2007, p. 114) Information failure happens when banks are afraid to lend to each other out of fear of default of the other party. (Chacko, Evans, Gunawan, & Sjoman, 2011)

If one major institution fails, there is a very troublesome eventuality of a severe systemic financial meltdown, since interbank market spreads widen to the extent of a complete market freeze. "What may have started as a minor default, affecting only a tiny fraction of the fund's assets, can quickly spiral into a self-fulfilling cycle of withdrawals. The end result of which is to leave the last few investors holding all of the losses – in financial markets loyalty frequently does not pay." (Cooper, 2008, p. 16) Many governments created a framework in order to deal with bank runs. Usually it encompasses some form of insurance against bank defaults, which is taken out by banks (according to their market capitalization and the amount of deposited cash) and guaranteed by the government up to a certain amount, e.g. 100 000€ per account. However, as Chui & Gai (2004) note, this insurance may create a moral hazard since the bank "does not internalise the costs of the taxes that might be required to pay the insurance. It has an incentive to over-exploit the deposit insurance by promising short-term returns that are higher than the socially optimal level. (Chui & Gai, 2004, p. 32)

There is a way to stop a bank run – a bank can suspend payments to depositors after some critical threshold is reached, or can set a daily maximum amount of money one can withdraw from his or her account. "But while a suspension of payments may be able to prevent the deadweight loss caused by the premature liquidation of the illiquid asset, it may not allow full liquidation even in cases where it is efficient to do so." (Chui & Gai, 2004, pp.

32-33) Such a situation could be seen in mid 2015 in Greece, as banks were forced to close their doors and the government enacted capital controls with a maximum of 60€ / day / account withdrawal option for citizens. And as Chui & Gai rightly note, "although policy measures can limit the effects of crisis, they are likely to be associated with potentially significant costs." (Chui & Gai, 2004, p. 33) The costs of the bank closures and the imposition of capital controls in Greece were grave indeed.

As soon as a large number of banks starts to experience problems with its investments, a system-wide financial crisis may happen. (Allen & Gale, 2007, p. 24) This "pressure" might be a sudden liquidity shock, when interbank markets freeze (the market is incomplete) and, since banks are overleveraged and keep minimal capital in cash, there is no way to borrow funds for some reasonable interest. Firstly, banks have to fire-sell assets, which erase savings and pension investments of ordinary people. Selling into a liquidity-shocked market with enormous spreads between buyers and sellers requires the banks to get rid of assets at fire-sale prices. The loss is exacerbated even more due to rapidly falling prices of long-term assets, prompting stop-loss market orders (i.e. to sell the long asset if it reaches price X to stop further losses), or triggering sell-stop orders (i.e. to speculatively use CFD/option to short asset to profit on the falling market). Such a cascade of sell-stop and stop-loss orders creates huge swings in volatility of asset prices, since too many participants want to sell the assets but no one wants to buy them, forcing more banks to sell their assets for an even more fire-sell price in a vicious cycle, until the banks' immediate obligations are higher than the capital they can raise via depositors, frozen / shocked financial markets, or their own reserves, and banks are forced to default. (Cooper, 2008) (Allen & Gale, 2007) As Chui & Gai mention, "financial crises are not costly because of runs per se but, rather, because of the costs of premature liquidation and disorderly workouts." (Chui & Gai, 2004, p. 46) The government usually tries to avoid a complete systemic financial meltdown and thus is prone to bailing out the troubled banks (either by creating liquidity lifeline, or by nationalizing them, creating a "bad bank" with non-performing loans, or a combination of all). Actions such as central bank intervention (like pumping of liquidity to the financial system in order to lower the spreads) might be necessary to calm markets down, since the central bank is supposed to be a lender of the last resort. Otherwise a downward spiral of bankruptcy and unemployment happens, and, with plummeting fundamentals plus a destroyed banking sector, the state's currency falls sharply and the sovereign might become insolvent. (Minsky, 1976) (Wolfson, 2002)

A financial crisis brings several heavy burdens on the state and society as it damages not just the banking sector, but also the real economy. Since real-economy companies are unable to borrow money for investment, or more likely in this case to rollover their loans, they start to have serious problems with further investment, pay-back of debts, and are even forced to file for bankruptcy. The most probable targets of bankruptcy are companies in capital-intensive sectors (like real estate) and, most profoundly, completely speculative ("Ponzi") firms, which were unable to earn enough profit even before the crisis occurred. (Minsky, 1976) It is interesting to note Fane's (2000) research, in which he argues that the "ineffectiveness of bankruptcy law leads to informal credit networks guided by unwritten understandings and mutually consistent expectations that are prone to coordination failure." (Chui & Gai, 2004, p. 57) (Fane, 2000) Furthermore, due to the liquidity squeeze, high spreads, and the widespread panic, banks stop lending money to individuals and enterprises of all sizes, rather keeping it in the vault (or the central bank via overnight repo operations) in order to be (at least somehow) prepared for a potential bank run. Banks add problems when they ask companies and individuals to prematurely pay-back debts or face liquidation. Non-capital intensive or even healthy companies are unable to get a loan to invest, their products become less competitive, the investors' uncertainty sends down their stocks, and they are forced to decrease the productive capacity. Even though exporters could see some relief in a devalued currency (making their products cheaper abroad), importers are badly hit by a high import price inflation of input materials/technologies. Moreover, aggregate demand decreases due to the inability of people to borrow money in banks and companies' bankruptcy causing an uptick in unemployment, damaging real wages and general working conditions and increasing the burden for the state due to welfare payments (if any welfare scheme is available). (Ffrench-Davis & Ocampo, 2001) (Goldstein, 1998)

Chui et al. (2004) mention that "direct empirical attempts to evaluate the output costs of financial crises suggest that the costs of crisis often lie between 10% and 20% of annual pre-crisis GDP and may even be larger." (Chui & Gai, 2004, p. 57) Boyd et al. average the cost as 63-302% of real per capita GDP in the year before the crisis starts. (Boyd, Kwak, & Smith, 2005)(Allen & Gale, 2007) The average fall of stocks is 55% through 3.5 years, housing prices fall 35% on average through 6 years, and the average output drops by 9% through 2 years. (Reinhart & Rogoff, 2009, p. 2) Unemployment skyrockets by 7% over 4 years, while real wages and purchasing power fall due to unemployment and high inflation, increasing inequality within the country. The average length of a recession is roughly 1.5

years. (Reinhart & Rogoff, 2009, p. 2) Government debt is up 86% from a pre-crisis level mainly due to a lower income from tax receipts, higher welfare spending, and possibly bailing out the banking sector. (Reinhart & Rogoff, 2009, p. 2)

1.3.3. Currency crisis

Chui and Gai (2004) characterized a currency crisis as the situation in which "a country is forced to abandon its pegged exchange rate because of speculative attacks," and is basically "treated as a run on reserves at the central bank." (Chui & Gai, 2004, p. 87 and 35) Allen and Gale (2007) similarly mention that: "Currency crises occur when there are large volumes of trade in the foreign exchange market which can lead to a devaluation or revaluation. (Allen & Gale, 2007, p. 24) Tinakorn (2006) characterized a currency crisis as a devaluation of a local currency (against some other currency, most probably USD) by at least 35%.

A local currency peg to some major currency can be beneficial for the country, since it might be used as a security against high inflation, seemingly introduces fiscal and monetary discipline (Allen & Gale, 2007), and also massively increases liquidity by feeding cheap money from outside the country with a lower interest rate than from the local banks, but with the yield being still high enough for foreign investors to enjoy a relatively low-risk high-yield investment without the need to hedge against FOREX appreciation/depreciation risks. However, there are important risks for the locals that need to be acknowledged. Firstly, there are massive capital inflows and troubles associated with them, aggregately named "fixed exchange rate bubble" (Rajan, 2011, p. 33), which were already covered in the previous subchapters. Secondly, the local central bank loses its capability to flexibly adjust the exchange rate according to the global circumstances on economic and financial markets. Thus, if the USD increases its value against other currencies (e.g. the Fed increases interests rates), the local pegged currency increases its value too, making exports more expensive and less competitive against others. There is a way to overcome this problem by stepping up devaluation but it might be costly, especially considering that the majority of loans in the local economy are denominated in some major currency. Moreover, the peg can actually "import" the troubles of the major's country into the domestic economy, generating intense price volatility of stocks and other assets. (Ffrench-Davis & Ocampo, 2001) Thirdly, in order

to maintain the peg to the USD, during good times the local central bank has to sell the local currency on the FOREX market. However, it has to defend (buy) the local currency and sell the USD on the market in times of high capital outflows. (Rajan, 2011) (Ffrench-Davis & Ocampo, 2001) Such harsh times can occur especially when "fiscal deficit is covered by a combination of depletion of foreign reserves and an inflation tax on the domestic money stock. When the exchange rate hits the level that would occur without support there is a speculative attack and reserves are exhausted." (Allen & Gale, 2007, p. 229)" This defending of the currency against speculative attacks can quickly turn the local central bank's FOREX reserves into dust – and traders know it.

Graph 1: South Korean Won (M/M) (Tradingview, 2016)

An example of the currency crisis and devaluation during the 1997-98 Asian crisis can be seen on the graph on the left. Speculators tend to attack the local currency if they feel it becomes unbearable for the central bank to maintain the peg, and they usually win, as was the case when George Soros attacked the Pound Sterling and earned 1.5 billion USD in a month (Schaefer, 2015) in early 1992, or when other big players attacked Asian currencies in 1997-98. The central bank has to devalue the currency when no more reserves can be used to defend the peg, and speculators win hefty sums of money to the detriment of the local people. When the local central bank devalues too much and the economic players and the state are unable to meet the payments of their debts in the foreign currency, a possible sovereign debt crisis might be ahead.

1.3.4. Sovereign debt crisis

A sovereign debt default, either selective or complete, can occur if the state has a high fiscal deficit, looming (usually short maturity) debt payments, low tax revenues, and has no more reserves to pay the external debt. Since the economic system is already destroyed by either a currency or a financial crisis (or, often, by both), there is a close to zero probability that the sovereign debt could be paid back in time. This is a problem especially in case of massive capital outflows and a liquidity squeeze happening at the same time. The decision to suspend sovereign debt repayments is a way to curb a destabilizing foreign currency outflow. However, any payment suspension, either selective or global, is considered a sovereign debt default. (Chui & Gai, 2004, p. 64)

A sovereign debt default may take various forms. It can be either selective or strategic (i.e. the country defaults on all debts). A sovereign default usually takes the form of a so-called "haircut", cutting the nominal value of the debt, cutting the interest rate of the debt, and/or an extension of the period over which the debt has to be paid, and usually comprises all of these methods, at least to some extent. A complete 100% debt default is very rare. "For a country to strategically default, it must have the incentives to do so. In particular, the utility from repaying the loan has to be inferior to the utility from defaulting." (Chui & Gai, 2004, p. 63) Anyway, a sovereign debt default may have dire consequences in the short-term, like a partial or a complete inability to access global markets for funding (or, more precisely, the access is gained only for shatteringly high premium interest rates), which might lead not just to a shortage of foreign currency and subsequent hyperinflation (e.g. Zimbabwe), but also to a shortage of basic tradable goods, which have to be imported (such as Venezuela in 2016). (Chui & Gai, 2004) Sovereign countries which decide to default have two possible options – either a selective/strategic default or an organized default with the involvement of the IMF.

1.3.5. IMF involvement

The International Monetary Fund is an institution founded in 1944 in accordance with the newly established Bretton Woods system. It has many functions, among others helping heavily indebted countries not to fall into disorganized default, which could destroy the state's

basic institutions and wreak havoc both in the economy and among the population – all in order to never repeat the mistake of 1930s Weimar Germany. Thus the IMF acts as a lender of the last resort for countries. The IMF's purpose is to help the country get its economy running sustainably and lower the national debt to such levels at which the country would be allowed to emit bonds and re-enter financial markets again. This help is provided in the form of loans in exchange for neoliberal-based conditional reforms in accordance with the Washington Consensus – privatization of state-owned assets, severe welfare cuts, and generally harsh austerity measures, quick relaxation of regulations and barriers aimed at foreign companies, change of labour laws, etc.

A lot of literature is dedicated to the problem of the IMF loans' conditionality, and the ultimate added value of the IMF as a suitable institution for solving sovereign defaults is questionable at best. Wolfson (2002), Calvo (1998), and many others point out that harsh austerity measures and the troubled state's de-facto loss of an independent creation of its economic policy actually prolong the depression. The reason is that drastic austerity measures decrease the aggregate demand in the population, which effectively depresses the economy, diminishes the state's ability to "grow-out" of the debt, and more importantly, serves only the creditors' interests – to get out all the money left in the country as soon as possible to pay the remaining debt. Wolfson states clearly that "Policy prescriptions imposed by IMF as a condition of receiving funds have required the receiving countries to reduce aggregate demand, through monetary and fiscal austerity." (Wolfson, 2002, p. 398)

After the IMF's austerity measures and conditionality were applied for the first time in a developed nation, Greece, the IMF acknowledged that pursuing anti-growth policies was a mistake. The fiscal multiplier became a hotly debated issue in 2012. The expected value was positive 1.6, which would imply that for every one percent of GDP lost, 1.6% of debt/GDP ratio would be erased. However, as per Plumer (2012), the IMF realized that the FM is a value between 0.9-1.7. The reason for the FM being so much lower than expected is that the state under the austerity measures fails to get as much in taxes as before because spending cuts are forced on already heavily damaged economy. Due to the fact that the troubled state needs to borrow money and its real GDP is shrinking, the debt/GDP ratio effectively increases, creating a vicious cycle of indebtedness-austerity-more indebtedness-more austerity. After admitting the error, the IMF is a proponent of pro-growth policies and it repeatedly warned the European Commission and Germany to withdraw their harsh stance on austerity, since it damages growth and throws the European Union into a cycle of low-to-no growth and low-to-

negative inflation. (Plumer, 2012) (Elliot, 2013) In 2016 experts from the IMF even admitted that neoliberal agenda is no more relevant, since liberalization of the capital account (mainly the short-term capital flows), crises, and the subsequent austerity increase inequality, damage the prospect of sustainable growth, and the record of benefits of these policies "in terms of increased growth seem fairly diffficult to establish when looking at a broad group of countries." (Ostry, Loungani, & Furceri, 2016)

1.3.6. Contagion

Contagion, even though not accurately defined in literature, is the spill-over effect of financial/economic troubles from one (or a group of) economic player(s) (bank, industry, country) to other players which are directly or indirectly connected to the troubled entities. (Allen & Gale, 2007, p. 260) Allan & Gale (2007) defined three basic types of contagion: "The first is contagion through interlinkages between banks and financial institutions. The second is contagion of currency crises. The third is contagion through financial markets." (Allen & Gale, 2007, p. 293) Calvo & Reinhart analyzed vast amounts of data available on contagion and discovered that a common denominator of contagions is that contagion goes from a major economic regional power to smaller ones, usually within one region, e.g. South-East Asia, usually when global financial markets are in a state of excitation. (Calvo & Reinhart, 1996) (Goldstein, 1998) Masson's (1998) research was focused on international contagion, and he categorized the effects of contagion into three different groups: "Monsoonal effects result from a common external cause such as a rise in US interest rates that impacts on all dollar-indebted countries. Spillovers relate to the interdependence among the countries involved, which could be trade and/or financial in nature. Finally, jump or pure contagion refers to the effects of a shift in agents' expectations that are not based on changes in a country's macroeconomic fundamentals." (Chui & Gai, 2004, p. 95) (Masson, 1998) Nonetheless, Calvo & Mendoza (2000) argue that herding (and simple fear based on a rumour) is a more prevalent form of decision making, rather than a structural analysis of the problem. (Calvo & Mendoza, 2000)

Contagion via concepts of interlinkages and the common lender problem (Kindleberger & Aliber, 2005) are based on the fact that banks and financial institutions hold similar stakes in one region, and they accept those stakes as a collateral/margin for new trades

in financial instruments or derivates. “Whether the financial crisis does spread depends crucially on the pattern of inter-connectedness generated by the cross holdings of deposits.” (Allen & Gale, 2007, p. 262) However, while these intertwined interests of financial players are helpful as a factor of an effective redistribution of liquidity, they do not create liquidity per se. Another important thing Allen & Gale point out is the level of interconnectedness between the banks, claiming that the more interconnected (complete) banks are, the less probable a contagion is. (Allen & Gale, 2007, p. 262) In a short (and very simplified) form it means that in an incomplete market, Bank A in Country X buys a pack of loans from Bank B in Country Y which invested heavily in some long term assets, like real estate. However, when a liquidity squeeze attacks the region, Bank A wants to liquidate positions to enhance its own cash balance, while Bank B is incapable of paying back loans to Bank A, since its long positions were squeezed and it had to fire-sell those assets, taking huge losses. Since Bank B is incapable of paying back to Bank A, Bank A starts to have problems with liquidity and Banks C, D, E forbid further lending to Bank A and eventually force Bank A to default, creating more aggregate uncertainty, further limiting liquidity in the system. Thus contagion spreads from Country Y to Country X. (Kodres & Pritsker, 2002)

Contagion of currency crises usually takes place within some region, e.g. South-East Asia in 1997-1998. As soon as Country A’s economic system, with a currency peg to some major currency, starts to exhibit an increased volatility and economic fundamentals plummet, speculators will attack the currency peg, and the central bank is forced to devalue, since it wasted FOREX reserves on maintaining the peg. However, this creates a problem for other countries within the region, since Country A’s competitiveness increased thanks to a devalued currency, eventually damaging their exports and making their own currency pegs easy targets for speculators. (Corsetti, Pesenti, Roubini, & Tille, 1998) (Forbes & Rigobon, 2001)(Rajan, 2011)(Goldstein, 1998)(Allen & Gale 2007)

Examples of contagion between financial markets could be easily found during the 1930s Great Depression or more recently during the 2007+ Great Recession, or possibly nowadays during market jitters related to Brexit and China’s slowdown. When one economically powerful region becomes a victim of a major slowdown or even downright depression, financial markets world-wide start to exhibit extreme volatility and because of the globalized nature of financial markets other regions are hit by the storm. Investors, seeing the turmoil in the markets, decide that it is better to withdraw positions and set for a safe haven

bid, usually Yen or Gold – therefore, we can see a direct inverse correlation between Yen/Gold/US Treasuries and global stock markets. (Allen & Gale, 2007)

As was mentioned, Rajan & Gopalan (2011) consider foreign-based banks as possible agents of contagion: "There is a growing concern that foreign banks might be a source of instability and contagion rather than stability. This appears to have been the case in the global financial crisis of 2008–09 which hit the Eastern European financial system much harder than the more closed and regulated Asian financial system. ... It is more likely that the capital account in the form of foreign bank lending makes a country more crisis-prone than when a foreign bank establishes a separate entity in the host country to lend domestically, especially in the form of a fully independent subsidiary (as opposed to a branch or representative office)." (Rajan & Gopalan, 2011, pp. 58-59) This is fully in accordance with Forbes & Rigobon's 2001 crisis-contingent model (shift-contagion via a previously non-existing link): once foreign banks start to have problems in their domestic countries, they tend to suck liquidity from their foreign branches, possibly exporting financial troubles to other countries. (Forbes & Rigobon, 2001) The other model, non-crisis-contingent, expects that the contagion spreads via already created linkages between regional economic players, and is similar to Allen & Gale 2007 contagion via interlinkage, with Gerlach et al. stressing that the more intensive the economic interconnectedness with connection to inflexibility of nominal and real wages is, the more profound spill-over effects could be seen. (Gerlach & Smets, 1995) (Rajan, 2011) (Chui & Gai, 2004, p. 97)(Allen & Gale, 2007)

1.4. How to deal with a crisis

1.4.1. Pegged currency

As there is no financial institution in the world which would be capable of going through a bank run without getting harmed, there is also no central bank which is capable of defending a currency peg for an unlimited period of time, especially when massive capital outflows are combined with lower exports, and the currency starts to be bent under severe attacks by speculators.

One of the possibilities of discouraging speculators and bearing the lowest costs is leaving the peg (or devaluation) before foreign currency reserves are depleted. Another way to at least hurt speculators is a fuzzy setting of the peg rate, like China did in 2015-2016, when USD became very strong relative to its counterparts. The process of this fuzzy setting is that the bank chooses a lower peg rate one day and then chooses a higher peg rate. This hurts highly leveraged speculators and possibly throws them out of the market (by way of stop-loss or even margin call mechanisms).

The ideal way to deal with the problem of the currency peg, as per Ffrench-Davis & Ocampo (2001), is an introduction of "intermediate exchange rate regimes with capital account regulation" (Ffrench-Davis & Ocampo, 2001, p. 29), although the regime has to make moves to get credibility on the markets (or face speculative attacks) and has to face the costs of reserves accumulation during calm markets. Nevertheless, these costs may still be much lower than the costs associated with a possible currency crisis. (Ffrench-Davis & Ocampo, 2001, p. 29)

1.4.2. Stemming of capital outflows: capital controls + Tobin tax

The central bank might find a possibility to curb capital outflows by introducing capital controls, i.e. limiting the capability of investors to liquidate their assets and take the money out of the country in order to prevent bank runs or even the state's default. These capital controls may take many forms. They may be applied to the whole economy or only to selected industries/sectors for a limited or an unlimited time, or new regulations might be imposed, such as constraining of foreign portfolio investments (which tend to be among major causes of financial instability), direct limitations of the export of foreign currency across the border, etc. (Rajan, 2011) "The rationale offered for the imposition of controls tends to fall into one of the following inter- related "fear" categories: "fear of appreciation", "fear of 'hot money' ", "fear of large inflows", "fear of loss of monetary autonomy", "fear of asset bubbles" or "fear of capital flight"." (Rajan, 2011, p. 37)

One of the measures to curb capital outflows is to introduce a tax on financial transactions. In such cases, a punitive tax (also called Tobin tax) is introduced on the premature liquidation of assets, and money outflows are either harshly taxed or a ceiling for money outflow is introduced (or both). As Chui claims, an introduction of only modest controls or low exit taxes to "effectively limit financial instability" is not enough to curb capital outflows. (Chui & Gai, 2004, pp. 58-59) "The burden of a Tobin tax is claimed to be inversely proportional to the length of the transaction, i.e. the shorter the holding period, the heavier the burden of tax. For instance, a Tobin tax of 0.25 percent implies that a twice daily round- trip carries an annualised rate of 365 percent; while in contrast, a round- trip made twice a year carries a rate of 1 percent. Accordingly, and considering that 80 percent of forex turnover involves round- trips of a week or less, it has been argued that the Tobin tax ought to help reduce exchange rate volatility and consequently curtail the intensity of "boom- bust" cycles caused by international capital flows." (Rajan, 2011, p. 43)

1.4.3. Sovereign default

Sometimes a situation happens where a country is so indebted that it is unable to obtain any more funds on the open markets to rollover the debt (or, more precisely, the interest rate for such a debt is unbearable), and the pain of default becomes smaller than decades of austerity under IMF supervision. “The borrower chooses to repay if and only if the utility from repaying is at least as great as the utility from defaulting.” (Chui & Gai, 2004, p. 61) From the examples of Argentina’s default in 2001 and more recently Iceland’s default in 2008, one can perceive that the countries which defaulted and refused to pay back some of the debt to creditors perform generally better compared to countries which decided or were forced to ask the International Monetary Fund (IMF) for help and were consequently more damaged by a prolonged stagnation and an inability to grow due to painful IMF conditionality and harsh austerity measures.

1.4.4. Other possible measures

Since the 2007-8 Great Recession governments and central banks tend to introduce a monetary and/or fiscal stimulus in order to calm markets down during extensive periods of volatility. These measures include programmes of quantitative easing (or equivalent) based on a buyback scheme of government bonds by the central bank, increasing liquidity and decreasing the banks’ exposure to illiquid bonds. Such schemes were first introduced in Japan and later used in the USA and even in the Eurozone area. Another useful action is the creation of a direct domestic and foreign currency (e.g. USD) lending link to banks, which can act as a temporary solution during frozen markets episodes. This should go hand in hand with measures to provide better interconnectedness among banks within interbank markets in order to increase liquidity and decrease the amount of asynchronous information among banks. (Gai & Kapadia, 2007) Other actions may include a collaborative effort of a central bank stimulus with a vast fiscal stimulus, such as infrastructure spending, etc., as could be seen in Japan in the 1990s. (Koo, 2008)

Preventative measures recommended by Rajan (2011) are the introduction of increased capital requirements for banks (e.g. Dodd-Frank act in USA) combined with a rigorous risk

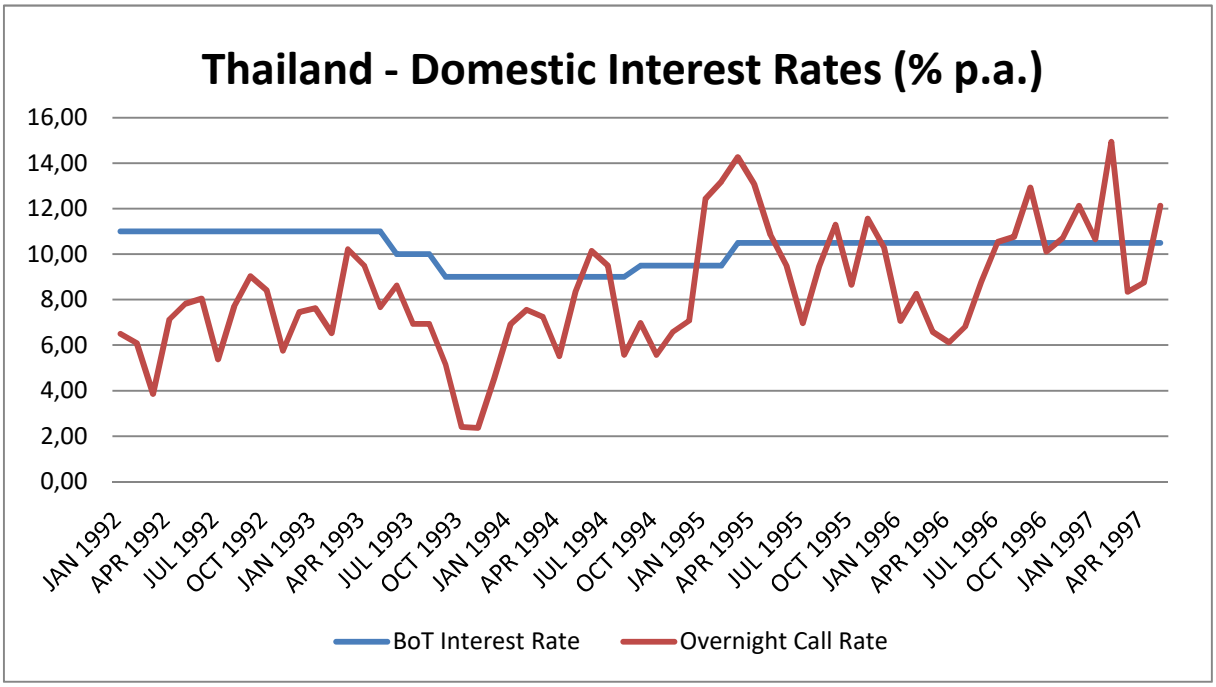
management and lowered risk exposure, which effectively cut possibilities for banks to engage in high-risk behaviour. The consequence is a lowered profitability of banks, which might be a political problem, especially in countries with strong lobbying groups trying to get lawmakers to do the exact opposite.

It is good to mention that scholars disagree on what a "proper" functional regulation should look like. While researching economic, financial, stock, or other related crises, one has to remember that every crisis is somehow unique. Panitch & Gindin claim that: "Because the resolution of a structural crisis is not simply quantitative but qualitatively affects socioeconomic, political and even cultural relations, this changes the terrain for the development of future crises." (Panitch & Gindin, 2011, p. 9) Wallerstein argues that at some point in time an equilibrium within the economic system is reached and the growth is more or less stable, since the system is capable of self-repair (at least to some extent). However, as soon as the economy enters correction or an outright crisis, it starts to show a more volatile development as the previous trend ends and after an adjustment a brand new equilibrium is found. (Wallerstein, 2011) Hausmann agrees that "every time there's a financial crisis, the financial instruments that cause the problem did not exist at the time of the previous crisis. We have never had a repetition of a financial crisis that looks just like the last one." (Hausmann, 2015) It means that instead of researching the actual financial instruments causing crises, the scholar needs to embrace higher concepts that are the causes of financial, banking, stocks, currency, sovereign debt, or liquidity crises.

2. 1997-98 East Asian Crisis

2.1. Thailand

Thailand is, within a region of giants like China, quite a small, export-oriented economy. It enjoyed a stable and relatively sustainable growth for 20 years before the year 1997, sporting both high saving rates and good fiscal discipline. Thailand's case was not an example of a credit boom fuelled by the local central bank – the Bank of Thailand (BoT, **ธนาคารแห่งประเทศไทย**). Quite the opposite is true – the BoT embraced a high-interest rate policy throughout the 1990s, and domestic saving rates in the 1990s were well above 30% GDP on average.

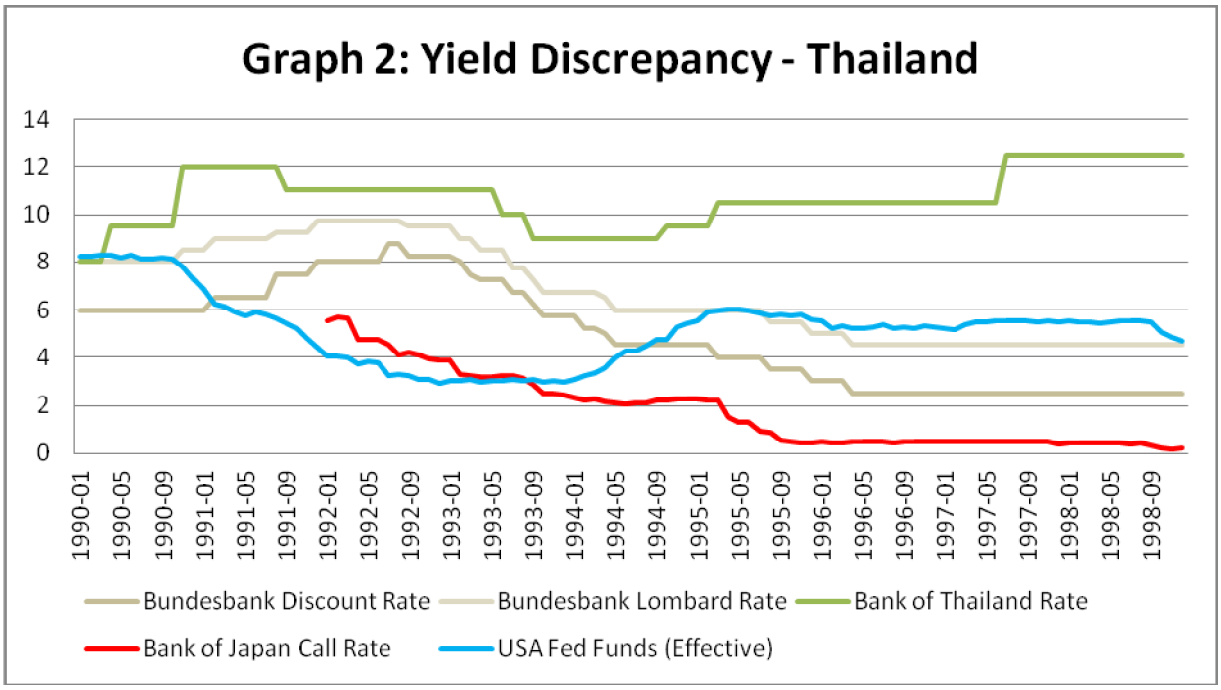


Graph 2: Thailand - Domestic Interest Rates (BoT, 2016)

Thailand underwent various liberalization and deregulation reforms in the period of 1989-1993. Reforms made by Prime Minister Annand introduced the liberalization of the financial sector and reformed the FOREX market, "including capital account convertibility, stock market reforms and the creation of an offshore banking facility", (Phongpaichit & Baker, 2004, p. 151) – all with the main goal of creating a regional financial centre in Thailand's Bangkok. (Khan, 2004) These reforms opened the capital account to foreign capital flows. Consequently, companies and banks were able to find cheap loans and take them out in foreign currency denomination. Despite expectations of a better competition within the financial sector thanks to deregulation and liberalization, the truth was that due to

Thailand's syndicated oligopoly-type financial sector there was not really a competition – the major banks took 80% of the market share while smaller banks struggled and engaged in even riskier behaviour than their bigger peers – just to become at least somehow profitable. (Leenabanchong, 2001, p. 287) Moreover, oligopolistic tendencies in banking could be also visible in the way bank managers let the credit flow to certain, government-preferred industries or following close relationships – the loans were certainly not based on the projects' viability or expert credit rating, creating severe vulnerabilities. (Leenabanchong, 2001, p. 284) These vulnerabilities were created hand in hand with a lack of prudent bank oversight by the authorities, partly because of a lack of experience and competence, partly because of cronyism. The introduction of very thinly regulated financial and securities companies brought another possible problem to the economy. Since those entities were technically "non-banks", they could not raise money, neither through deposits nor through standard channels, since the bond/securities market was underdeveloped (as was the case in the whole region) and the law did not permit the issue of bonds by non-banking entities. (Barton, Newell, & Wilson, 2003)(Leenabanchong, 2001) Thus these financial companies relied on banking credit (with high domestic interest rates) and short-term offshore credit, which was enabled by creating the Bangkok Investment Banking Facility (BIBF), set up to hoard foreign money and provide it to Thai economic agents at a lower interest. Non-bank entities had to invest in assets with high yields in order to sustain the pressure of competition and to repay the debt to creditors and foreign financial markets. Financial institutions grew accustomed to never-ending liquidity and availability of both credit and the possible roll-over of the debt. This exactly suits Minsky's (1976) theory about the creation of speculative / Ponzi companies during the later stages of the boom; such companies hoard debt and are dependent on a debt roll-over to manage their operations sustainably.

Availability of cheap credit is directly connected to the flush of capital inflows after the deregulation of the capital account in the early 1990s. As soon as the capital account was opened and interest rate ceilings were abolished, an increased volatility period could be perceived after which the foreign investment started to flow in. The fact that local interest rates were high created a yield discrepancy compared to other countries.



Graph 3: Yield Discrepancy - Thai Baht vs DM, USD and JPY (BoT, 2016)(FED, 2016)(BoJ, 2016) (BuBa, 2016)

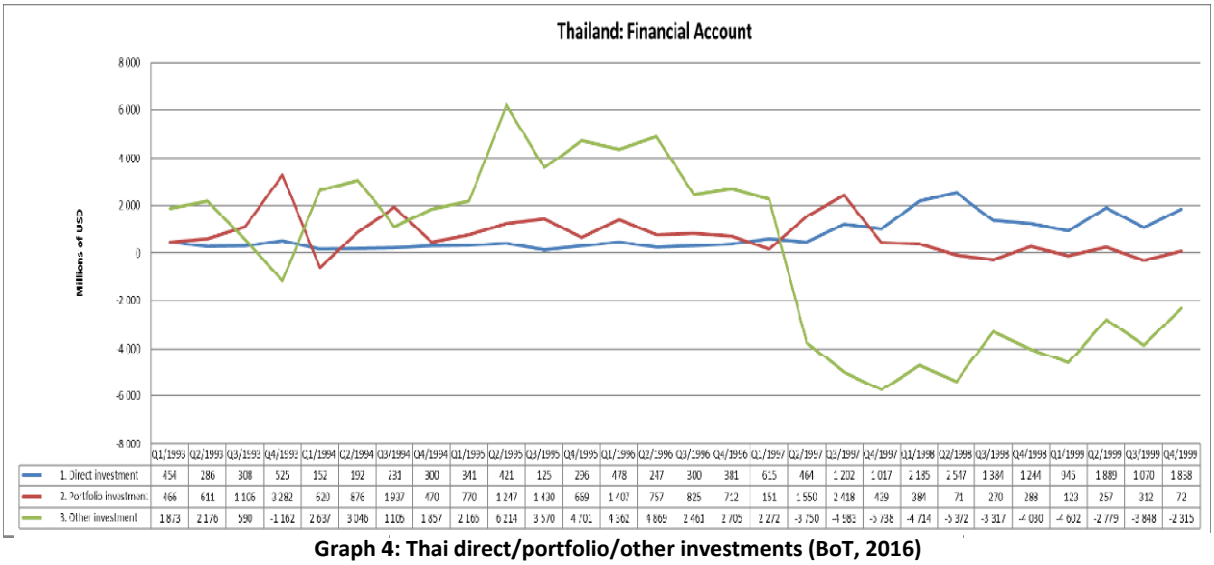
Japanese and German banks, seeking higher yields than they could get in their domestic countries, had heavy exposures in Thailand and helped to fuel the capital inflows and consequently the real estate and stocks bubble. The exposure of the USA's banks was roughly about 25% of that of Japan. (Morris, 1999, p. 218)

High capital inflows had various macroeconomic consequences. Table 1 shows key economic indicators of the Thai economy during the 1990s, which gives the reader an image of a successful country until 1996. GDP growth was very handsome, while inflation was kept at relatively stable and sustainable levels. Pure exports were higher than imports until 1995, showing sustainable development and suggesting that capital inflows (which were the reason for trade deficits) were not used for domestic consumption despite a relatively high current account deficit thorough the 1990s. This high CAD was not seen as a problem in Thailand's case because it was expected that capital inflows were spent in productive ways. The first problems could be seen in 1995, when the CAD jumped almost twice since the year before but GDP growth and exports almost stalled. Imports also jumped roughly twice

Table 1: Thailand - basic economic indicators	1991	1992	1993	1994	1995	1996	1997	1998	1999
Growth rate of GDP (% change, Y/Y)	8,56	8,08	8,25	8,00	8,12	5,65	-2,75	-7,63	4,57
Headline Consumer Price Index (% Change)	5,70	4,10	3,40	5,01	5,79	5,90	5,60	8,07	0,31
Exports (% change)	23,82	13,81	13,36	22,14	24,82	-1,90	3,76	-6,78	7,41
Imports (% change)	15,71	6,02	12,34	18,43	31,85	0,61	-13,36	-33,75	16,94
Current Account Balance (% of GDP)	-7,5	-5,5	-4,9	-5,4	-7,9	-7,9	-2,0	12,7	10,2
Central government debt (as % of GDP)	13,37	10,88	8,19	5,69	4,61	3,67	4,64	10,67	20,01
Total Reserves (% of Total External Debt)	46,21	36,92	34,25	24,52	28,15	35,90	40,92	49,10	61,83
Broad money growth (% change)	19,40	15,51	18,99	10,69	17,74	10,62	19,55	10,07	3,80
Bank of Thailand (BoT, 2016)				World bank (Worldbank, 2016)					

compared to the year before – all the while increasing the total debt more than twice since 1993.

Thailand's currency, the Thai Baht (THB), was firmly pegged to USD, and the currency pair fluctuated around 25 THB/USD. The Bank of Thailand tried to maintain the peg through direct interventions on the market via selling the local currency for USD in order to sustain the pressure of capital inflows (and subsequent strengthening of THB). Problems started as USD strengthened and JPY weakened. A vast amount of debt was denominated in a foreign currency (USD) so competitive devaluation would inevitably damage the indebted companies, often owned by the lawmakers. (Khan, 2004) A damage of such proportions would cause



Graph 4: Thai direct/portfolio/other investments (BoT, 2016)

significant stress to the banking sector due to a severe increase of non-performing loans; not to mention that the BoT needed these flows to finance the still growing current account deficit. The BoT, instead of devaluing the Baht, maintained the peg and tried to sterilize the excess amount of money in the economic system in order to cut down the credit growth. Such an action was technically impossible due to the opened capital account and vast yield discrepancy. (Khan, 2004) Growth of broad money (M2 & M3) was increasingly indicating an overheating of the economy. The BoT even tried to stem the credit growth by increasing the interest rate in 1995 and increasing the liquidity reserve requirements for short-maturity foreign denominated debt holders in 1996. However, these incentives only deteriorated the quality of investments further, since the possibilities were either to stem the flow and let things fall apart (since companies would be unable to roll-over the debt), or to invest in even riskier assets, since money was handed usually against a collateral, now exorbitantly overpriced (which ultimately ended in an even harsher crisis).

The Graph 4 illustrates types of capital inflows. While long-term foreign direct investments (cold money) were stable until Q1/1997, portfolio flows fluctuated, and other (short-term/speculative/hot money) flows were massive, engulfing both FDI and PI many times over. Other investment flows peaked in Q2/1995, and they were in a steady decline until Q1/1997 when uncertainty, worsening of economic fundamentals, and attacks on the Baht generated enormous capital outflows of other investments.

These other investments, or "hot money" (short-term capital), found their customers very easily. Thai companies used every opportunity to minimize their expenditure and thus they turned to foreign credit, usually with a very short maturity (portfolio/other investments), via the offshore Bangkok International Banking Facility. From the companies' point of view it was a rational choice: since THB was firmly pegged to the dollar, there was little-to-none currency risk (nobody expected a THB devaluation). Foreign credit was cheaper than loans issued by domestic banks. The surplus of cheap foreign credit also enabled the companies to rollover a maturing short-term debt for a new one, so the maturity/rollover risk was seen as very low.

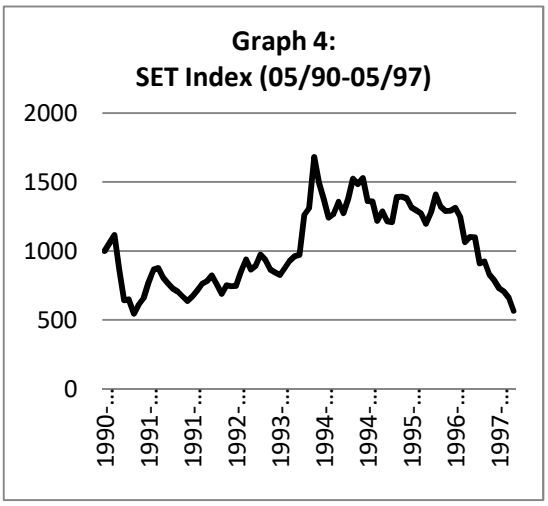
Table 2: Thailand: debt-related indicators	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Central government debt (as % of GDP)	18,45	13,37	10,88	8,19	5,69	4,61	3,67	4,64	10,67	20,01	21,96	24,58	30,07
% of Short-term/Total external debt	29,62	33,13	35,25	43,00	44,53	44,08	42,29	34,49	28,27	24,17	18,64	19,65	18,94
Short-term debt (% of exports + primary income)	28,13	30,96	39,93	39,00	52,74	58,82	75,11	64,40	50,19	38,94	33,83	19,97	15,38
Short-term debt (% of total reserves)	58,37	67,92	69,52	88,97	96,36	119,37	123,47	140,67	100,42	67,33	45,55	40,02	30,64
Total Reserves (% of Total External Debt)	50,75	48,78	50,70	48,33	46,21	36,92	34,25	24,52	28,15	35,90	40,92	49,10	61,83
Broad money growth (% change)	25,52	19,40	15,51	18,99	10,69	17,74	10,62	19,55	10,07	3,80	4,91	5,46	3,78
World Bank (Worldbank, 2016)													

Table 2: Thailand - debt related indicators (Worldbank, 2016)

On the other hand, there was the motivation of the creditors to lend money. As was already written, the yields of bonds and other instruments were much higher in Thailand than in the country of the capital's origin, especially in Japan and Germany. Issuing the debt in USD was comfortable, since there was a low currency risk for the creditor, Thailand's economy looked reasonably low-risk, and the short-maturity of debt provided hefty profits even if the loan lasted for just a few months. (Khan, 2004, p. 9) Table 2 lists debt indicators since 1992. As the reader can see, the short-term debt steadily increased both in nominal and % terms throughout the 1990s until it touched a threshold of 100% of total reserves in 1994 and remained over this threshold in the next years.

Nevertheless, the good times were gone as soon as the US Dollar started to strengthen against its major rivals due to the increase of the Fed's interest rate in 1994, creating a major disadvantage for Thailand, even more since China devalued Yuan in 1994 by almost 50%. (Kownatzki, 2010) This competitive disadvantage was not caused only by the strengthening of the dollar – Warr (1998) states that the conjuncture was not based on the higher quality of the labour force (due to the fact that the Thai school system was still not developed well). Despite this fact the real wages in manufacturing rallied through the 1980s to the mid-1990s. As can be seen on the graph below, real wages increased by more than 60% in 12 years, so a combination of the US Dollar's appreciation and the increase of real wages in manufacturing caused a slump in exports, especially in labour-intensive sectors such as textile and shoe-making. (Warr, 1998, p. 48) The appreciation of wages is one of the consequences of high capital flows used for financing a high CAD.

Graph 5: Thai real wages (Warr, 1998, p. 49)



Graph 6: SET stock index(SET, 2016)

In spite of the common expectation that the stock market price level would be higher than in the beginning of the 1990s, the SET Index in 1994-1996 actually fell. It was a readily available sign that problems in manufacturing are more systemic than occasional. Thus troubles grew not only because of appreciating wages, but also because of a slow change in the prospect of demand – low-skill manufacturing (textiles, etc.) was substituted by the rising China (and its competitive-devalued currency), whereas the microchip and computer hardware industries had overall overcapacity problems. Thai companies, instead of changing their business model and focusing on a different type of exports, built more production capacity and manufactured goods which no one happened to buy. (Warr, 1998)

Despite the warning signs of possible troubles in the manufacturing sector the housing index steadily grew. “New housing construction increased by an average of 17 percent per year while land prices quintupled in the central business district and rose by over 3000 percent in outer areas.” (Harvey, 2009, p. 122) (Sheng & Kirinpanu, 2000, s. 14) Khan (2004) noted that in the period “between 1992 and 1996, a total of 755,000 housing units were built in Bangkok, double the national plan estimate.” (Khan, 2004, p. 11) In the period from 1993 to 1996 real estate assets price levels in the main areas increased by 395%. (Allen & Gale, 2007, p. 61) Misallocation of resources and overcapacity could also be seen just before the crisis, as so much real estate was built for such exorbitant prices that “Thailand had residential vacancy rates of 25-30 per cent and vacancy rates for offices in Bangkok of 14 per cent.” (Khan, 2004, p. 11) Thus, as can be seen from the contribution of the financial sector to the GDP increasing more than twice in the period of 1989-1996 (Harvey, 2009, p. 122), the speculative capital inflows were “digested” by domestic banks, which took cheap and widely available short-term credit from the BIBF offshore facility and then funnelled this cash into the financial/securities companies, and they let the cash flow to the real estate sector in the form of long-term loans with high yields.

Warning signs flashed red in 1996. The amount of goods exported from the country fell by 1.27% Y/Y (IMF, IMF Data, 2016), the growth of the industrial sector fell from 10.5% in 1995 to 6.6% in 1996 (ADB, 2016), GDP growth fell from 8.1% in 1995 to 5.7% in 1996, and the SET stock index was falling since late 1994. At the same time, inflation, broad money growth, and debt growth were pretty high, subsequently increasing trade deficit and current account imbalance. It should be noted, though, that the slowdown was wide-spread among most countries in the world (partly as a consequence of the Fed’s increase of interest rates in 1994-95). However, those warning signs clearly demonstrated that the economy was rather ill, or at least that the money flows were not used for productive long-term and sustainable purposes. Investors started to pull out the money, especially the short-term investments, from Thailand and the broader region.

The wake-up call of the crisis was the melting of the Bangkok Bank of Commerce, followed by Somprasong Land’s, a major real estate developer, default on foreign-denominated bonds in February 1997. (Khan, 2004) These events combined with an official report unveiled in March 1997 on the unsustainability of the real market sector (especially the financial companies’ huge exposure) wreaked havoc among investors. (Harvey, 2009) (Barton, Newell, & Wilson, 2003) The report stated that a “substantial number of domestic

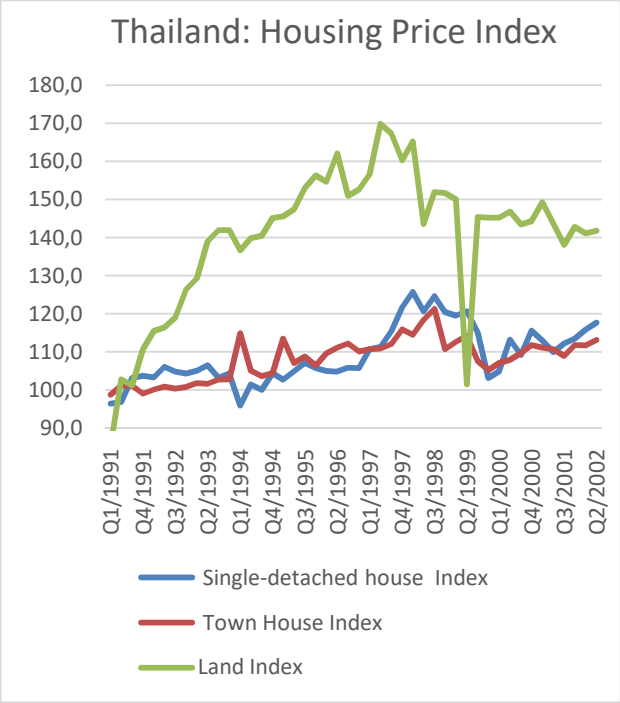
finance companies exposed to the property sector were in default on their foreign debt payments," (Moschella, 2000, p. 96) or more precisely, out of the expected 300 billion Baht debt stock of possible bad loans, loans worth 100 billion Baht were outright non-performing for more than a year. (Khan, 2004, p. 12) Tinakorn (2006) mentions that the impact on the Baht and the financial sector would have been less severe if the financial sector had not already been in trouble. (Tinakorn, 2006) Nevertheless, the confidence of investors was shaken from the "sky-is-the-limit" mode (supported – as usual – by Moody's and Standard & Poor's credit rating agencies) pretty much to the ground.

As soon as all the news hit the wires, outflows of capital started in huge numbers and traders started to check the waters for an all-out attack on the Baht. The Bank of Thailand tried to stem capital outflows by increasing interest rates (as seen in Graph 1). This move effectively started a classic Minsky's cascade of events, in which capital-intensive industries (real estate) and speculative/Ponzi companies became unable to rollover their debts. In conjunction with the worsening of general economic fundamentals and lowered expectations, the demand for new real estate plummeted, and developers started to experience serious problems with the payback of their loans, creating a huge stock of non-performing loans. NPLs damaged the overleveraged banks' balance sheets and because of (now already massive) capital outflows cheap credit became scarce. Credit squeeze became real as banks were not able to rollover their debt, and the interbank market (not properly interconnected either within the country or within the region) was unable to provide sufficient liquidity, further constricting available credit for consumers and companies. Moreover, as Moschella (2010) noted, "delays in disclosure of crucial data, such as the data on foreign exchange reserves, and lack of transparency about government and central bank operations … further complicated the crisis by undermining market confidence." (Moschella, 2010, p. 131)

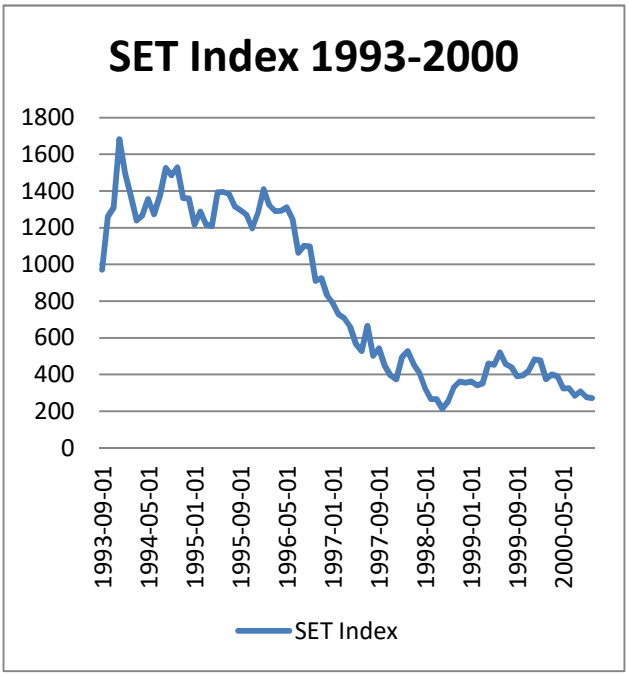
These conditions provided fuel for speculators who aimed to make a full-blown attack on the Baht. Their initial attempts were halted by the BoT's increasingly desperate attempts to defend the currency by selling foreign reserves on the FOREX market, increasing the overnight call rate or introducing capital controls, further decreasing investors' confidence. (Trivellato, 1999, pp. 51-52) A full-scale attack on the Baht was conducted in March 1997 and ended up by widening the spreads and decreasing the liquidity in the system, resulting in higher interbank rates. Since local investors and exporters expected at least some broadening of the exchange rate range (i.e. devaluation of the Baht), they also sold the Baht and hoarded USD. (Warr, 1998) In June 1997 the government was forced to admit that the reserves of roughly 23 billion USD were already used up for forward swap obligations. The BoT was

Graph 7: Thai baht vs. USD and JPY, M/M Candlestick Graph (Investing.com, 2016)

forced to quit the currency peg on 2 July 1997. The Baht crashed from initial (roughly) 22.1 Baht per dollar to the all-time high of a slightly more than 56.7 Baht/USD (or roughly 156%) and similarly fell against the Japanese Yen from roughly 5 Yen/Baht to about 2.5 Yen/Baht (cca 100%). (Investing.com, 2016)



Graph 8: Thai housing price index (BoT, 2016)



Graph 9: Thai SET stock index (SET, 2016)

Meanwhile, stocks and assets plummeted. SET fell from 665.62 points at the July 1997 close to the lowest low of 214.53 points at the August 1998 close, or more than -67%, and more than -87% from the December 1993 highest high of 1682.85. (SET, 2016) Real estate assets were also hit severely, mainly in the largest urban areas. Land index (100 = 1992) fell from 170 in Q2 1997 to 100 in Q3 1999, a roughly 41% fall. (BoT, Statistics, 2016) Leenabanchong (2001) found out that ¾ of all banks and financial companies were experiencing problems with liquidity during this period because an all-out run on financial/security companies was performed by a combination of capital outflows, pre-mature liquidation in the falling market (causing the collateral to be lower than the debt), and an overall negative risk sentiment of investors. The FRDF spent 70% of the 1100 billion Baht stimulus on increasing liquidity and unfreezing the financial market, usually in the form of direct deposits. (Leenabanchong, 2001, p. 272) After roughly a year the actual crisis was over; nevertheless, other troubles arose such as a general aversion of banks to risk, effectively limiting credit availability to companies and individuals and thus protracting the crisis with a subdued growth (Trivellato, 1999, p. 56).

It is hard to rely on official government unemployment statistics, especially because structural problems and the virtual non-existence of an effective welfare system within the Thai economy prevent us from getting a clear image even in 2015. People fired from jobs thus just went away to the countryside and did not register as officially unemployed, or they worked in the grey economy or laboured on farms, which can also be observed in the increased growth in the agricultural sector during the crisis. (Yuvejwattana, 2015)(ADB, 2016) Nevertheless, during the period of 1997-1998 World Bank statistics claim a rise of unemployment from 0.89% to 3.4% (Worldbank, 2016); Tinakorn's (2006) estimate is 3x the rate of 1997, while Khan estimated that more than a million people lost their jobs. (Khan, 2004, p. 25)

Such intense economic troubles coupled with massive devaluation forced Thai authorities to seek help from the international community and the IMF because the central bank was unable to manage the floating currency with just about 1 billion dollars in readily available reserves. (Tinakorn, 2006, p. 69) The IMF helped with a usual cocktail of conditionality; among others, fiscal austerity with an expected fiscal surplus of 1% accompanied by vast cuts in public expenditures, restructuring of the financial sector, increased efficiency of the banks, increase of domestic interest rates, increase of the VAT, reduction of the CAD, etc. Thailand received a credit link/facility worth 17.2 billion USD, or 500% of its nominal IMF membership quota (Moschella, 2010, p. 100), which was supposed to be disbursed in payments every 3 months after a general agreement that Thailand successfully implemented the required conditions set by the IMF. (Khan, 2004, p. 19) However, the IMF's predictions, especially growth expectations, were, as is an unfortunate case with the IMF, overly optimistic and Thailand's PM Chuan Leekpai had to make a new agreement with different, less contractionary terms, although as Khan notes "this may have been "too little too late" and unemployment, inequality, skyrocketing inflation, real wages and general standard of living of citizens deteriorated rapidly, hitting the poorest the most. (Khan, 2004, p. 25) One of the IMF's conditions was a sweeping reform of chaebols, local conglomerates. The reform "included enhancement of management transparency, strengthening owner-manager's accountability, elimination of cross-debt guarantees among chaebol affiliates, improving financial structure, (and) consolidation of core business areas." (Chekan, 2011, p. 101) It forced splitting of companies into smaller, more easily manageable entities. Also, the maximum debt to equity ratio was to be under 200% in order to prevent too-big-to-fail situations. (Chekan, 2011) The banking system reform included changes in

supervision, which became strictly rules- and risk-based, becoming similar to its western counterparts. Moreover, in 2003 the government introduced counter-cyclical measures focused on prudent macroeconomic regulation and oversight. (BoT, 2010)

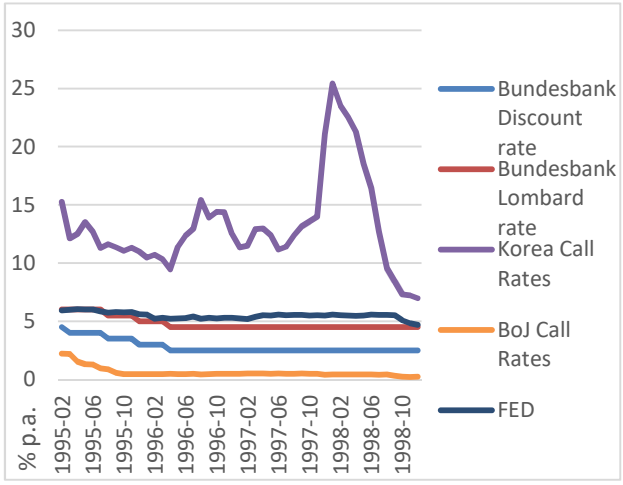
There is a certain friction among scholars who tried to assess the IMF's performance in the Asian crisis. Some scholars, like Wolfson (2002), argue that the IMF "misidentified the financial crisis in Asia as a balance-of-payments problem and only served to worsen the debt-deflation problems of Asian countries." (Wolfson, 2002, p. 398) Indeed, there might be a kernel of truth in similar statements, since imposing harsh austerity effectively damped the last sparks of the aggregate demand and deepened the actual crisis, preferring the payment of debt to creditors instead of the citizens' well-being. Ito (2007) was particularly bitter about the IMF's response. He argued that the extent of the IMF programs was insufficient and thus they did little to stem the spread of the contagion to the region and beyond. Moreover, the conditionality with which the programs were offered had a "lack of credibility effect" to calm down the battered markets. (Ito, 2007, p. 25) "Under these circumstances, it is not surprising that East Asian governments have been hesitant to enter into new agreements with the multilateral agencies. For example, Thailand quietly told the World Bank to phase out its mission and has repaid its IMF loans earlier than was necessary. Malaysia openly boycotted the IMF during the crisis, while the Indonesians publicly celebrated the termination of their borrowing agreement with the IMF." (Denoon, 2007, p. 19)

Table 3: Thailand - Table of Economic Indicators	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Growth rate of GDP (% change, Y/Y)	11,17	8,56	8,08	8,25	8,00	8,12	5,65	-2,75	-7,63	4,57	4,46	3,44	6,15
Headline Consumer Price Index (% Change)	5,93	5,70	4,10	3,40	5,01	5,79	5,90	5,60	8,07	0,31	1,60	1,60	0,70
Private consumption (% change)	12,9	5,3	9,9	8,0	7,9	8,3	5,0	-1,4	-10,2	4,1	7,0	5,9	6,2
Government consumption (% change)	6.9	5.1	9.6	8.8	8.5	6.9	9.8	2.8	4.6	3.6	2.8	2.6	3.4
Government expenditure, total (% of GDP)	13.2	13.5	14.0	15.2	15.7	15.3	15.9	19.9	22.0	23.9	16.8	17.2	22.7
Tax revenue (% of GDP)	16.0	16.5	14.9	15.3	16.0	16.4	16.6	16.0	13.6	12.8	12.8	12.9	13.2
Household final consumption expenditures (% of GDP)	53.3	55.0	54.8	54.7	52.0	51.2	51.7	53.0	51.7	53.2	54.1	56.0	55.7
Household consumption (% change in national currency)		11,59	12,51	11,61	13,19	13,63	11,42	4,32	-3,16	3,58	6,47	6,45	6,09
Exports (% change)	15,1	23,6	13,8	13,4	22,1	24,8	-1,9	3,8	-6,8	7,4	19,5	-7,1	4,8
Imports (% change)	29,8	15,6	6,1	12,4	17,7	32,7	0,6	-13,4	-33,8	16,9	31,3	-3	4,6
Exports of goods and services (% of GDP)	33.1	35,10	35,90	36,90	38,30	41,60	39,00	48,20	57,90	56,40	64,80	63,30	60,60
Imports of goods and services (% of GDP)	40.6	41,70	40,10	41,00	43,10	48,30	45,30	46,80	42,30	44,30	56,50	57,00	54,30
Manufacturing (Current prices, Y/Y % change)		15,46	8,36	11,37	11,89	15,76	7,72	4,62	2,25	5,70	6,61	3,37	10,56
Construction (Current prices, Y/Y % change)		23,75	11,68	18,52	21,34	13,84	13,85	-23,68	-30,12	-9,50	-9,67	1,77	7,55
Industry (as per ADB; Y/Y, % change)	16.1	12.1	9.9	14.3	9.7	10.5	6.6	-4.3	-11.5	6.7	2.6	2.3	8.4
Industry (as per ADB; % of GDP)	37.2	38.0	36.7	37.1	37.3	37.6	37.3	36.8	36.3	36.5	36.8	36.5	37.0
Services (as per ADB; Y/Y, % change)	12.7	6.1	7.5	9.3	7.0	7.6	5.1	-2.1	-6.4	3.1	5.3	4.3	5.6
Services (as per ADB; % of GDP)	52.8	51.7	53.2	54.8	54.1	53.3	53.6	54.1	53.5	54.6	54.7	55.0	54.3
Agriculture (as per ADB; Y/Y, % change)	-4.7	6.8	4.5	2.0	6.7	1.3	5.3	-0.5	0.7	4.8	6.8	3.1	0.1
Agriculture (as per ADB; % of GDP)	10.0	10.3	10.1	8.0	8.6	9.1	9.1	9.1	10.3	8.9	8.5	8.6	8.7
Producer Price Index (% Change)		6,79	0,23	-0,42	3,98	8,17	1,83	5,06	12,19	-4,72	3,92	2,50	1,67
Current Account Balance (% of GDP)	-8,3	-7,5	-5,5	-4,9	-5,4	-7,9	-7,9	-2,0	12,7	10,2	7,6	5,4	5,5
Direct investment (Mil of USD)	2402.0	1415.0	1544.0	1573	875	1183	1406	3298	7360	5742	3371	4631	3164
Portfolio Investment (Mil of USD)	457.0	48.0	531.0	5465	2663	4116	3701	4558	331	-106	-712	-881	-1606
Other investment (Mil of USD)	6885.0	9875.0	7577.0	3477	8645	16650	14397	-12199	-17433	-13544	-12920	-7224	-3403
International (Forex) Reserves (Billion of USD)	14,3	18,4	21,2	25,4	30,3	37,0	38,7	27,0	29,5	34,8	32,7	33,0	38,9
Currency Swap Obligations								18,0	6,6	4,8	2,1	2,1	0,5
Single-detached house incl. Land price (% change)			13,5	9,9	-0,2	6,4	2,1	6,5	-2,1	-9,8	3,2	-0,2	0,7
Land price(% change)			19,4	15,6	1,8	7,2	3,0	5,4	-6,3	-11,5	6,9	-1,0	-0,8
Central government debt (as % of GDP)	18,45	13,37	10,88	8,19	5,69	4,61	3,67	4,64	10,67	20,01	21,96	24,58	30,07
% of Short-term/Total external debt	29,62	33,13	35,25	43,00	44,53	44,08	42,29	34,49	28,27	24,17	18,64	19,65	18,94
Short-term debt (% of exports of goods+services+primary income)	28,13	30,96	39,93	39,00	52,74	58,82	75,11	64,40	50,19	38,94	33,83	19,97	15,38
Short-term debt (% of total reserves)	58,37	67,92	69,52	88,97	96,36	119,37	123,47	140,67	100,42	67,33	45,55	40,02	30,64
Total Reserves (% of Total External Debt)	50,75	48,78	50,70	48,33	46,21	36,92	34,25	24,52	28,15	35,90	40,92	49,10	61,83
Broad money growth (% change)	25,52	19,40	15,51	18,99	10,69	17,74	10,62	19,55	10,07	3,80	4,91	5,46	3,78
Credit/GDP gap (End of December; % change)	90,4	98,8	105,6	114,4	129	144,7	155,6	170,4	168,5	148,8	120,9	108	107,8
Bank nonperforming loans to total gross loans (%)									42,9	38,6	17,7	11,5	16,5
Interest rate spread (lending - deposit rate)(% p.a.)	2,17	1,73	3,29	2,54	2,44	1,67	3,06	3,13	3,77	4,21	4,54	4,71	4,90
Domestic credit provided by financial sector (% of GDP)	94,08	96,22	103,56	112,54	128,56	140,27	145,49	178,42	173,92	150,82	134,26	123,48	120,72
Unemployment (%)	2,20	3,10	2,90	2,60	2,60	1,70	1,50	1,50	4,40	4,20	3,60	3,30	2,40
Bank of Thailand (BoT, 2016)						World bank (Worldbank, 2016)				International Monetary Fund (IMF, 2016)			
Asian Development Bank (ADB, 2016)						Bank for International Settlements (BIS, 2016)							

2.2. South Korea

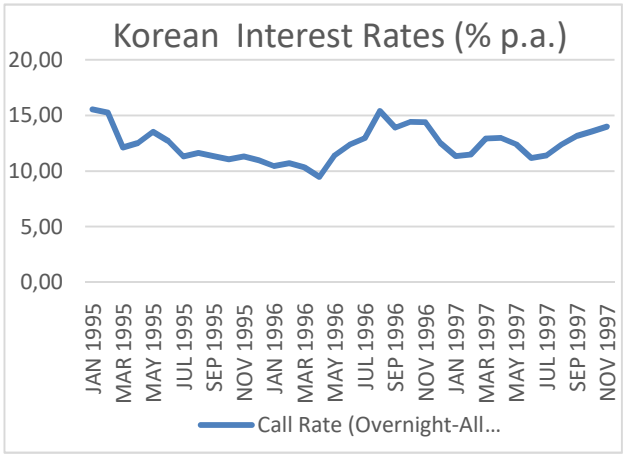
At the time of the onslaught of the crisis, South Korea was the 11th biggest economy in the world. As was usual in Asian countries, Korea enjoyed high domestic saving rates (above 30% as per the Bank of Korea) and was well-known for its well-guided management of macroeconomic affairs throughout the 1980s and the early 1990s. Inflation was low, macroeconomic indicators were sound, the current account deficit was mild (with the exception of 1996, the CAD was around 1%, as per the BoK (2016)), the S&P agency gave Korea an upper investment grade rating (Chui & Gai, 2004), the country had a stable exchange rate and it was an export-oriented economy. Main exports consisted of, among others, cars, electronics, oil products, and steel. An interesting feature of Korea's economy was the existence of local family-owned chaebols, large conglomerates which encompassed various sectors of the economy. These conglomerates (or more precisely, families owning them) were tightly intertwined with local bankers and policymakers. Even though there was some regulation in effect regarding foreign competition, chaebols "suffered from traditional industry structures and misguided industrial policies that encouraged overinvestment in key sectors and protectionism which lulled domestic corporations and caused them to delay needed changes." (Barton, Newell, & Wilson, 2003, p. 49)

Korea underwent a deregulation and liberalization period in 1991-1993. Capital account controls which were in effect previously were lifted and, interestingly, short-term capital flow liberalization was introduced before the long-term (like FDI) flow, and short-term loans were a preferred way to finance the CAD, instead of FDI or equities. (Roubini & Setser, 2004) (Agosin, 2001) Equities, on the other hand, were still rather restricted even after deregulation. Those restrictions included a maximum share allocation to foreign investors to be smaller than 10%. (Agosin, 2001, p. 39) Actually, chaebols were unable to get access to long-term capital from third countries (Chui & Gai, 2004) so a new kind of financial intermediaries was introduced – financial companies, which later evolved



Graph 10: Korean won's yield vs major rivals (BoK, 2016) (BuBa, 2016) (BoJ, 2016) (FED, 2016)

into merchant banks (usually a part of some chaebol). Merchant banks and financial institutions were sometimes "disguised as foreign institutional investors … [and] invested heavily in Korean stocks and high-risk securities throughout Southeast Asia" and were also "investing recklessly in foreign securities, offshore funds, and derivatives, without any international experience," including Thailand. (Kim & Park, 2001, pp. 85-86) Since these kinds of banks were forbidden from taking deposits from the public, they were mostly unregulated. Commercial banks, which hold the citizens' deposits, were regulated, although rather poorly – regulation and oversight authorities did not develop enough expertise and skills, partly due to the fact that previously the economy had been guided by ministries or subsidiary agencies (thus they lacked talent and experience), partly due to the neoliberal euphoria of the early 1990s and a hesitance, if not contempt, towards intervening on free markets. (Agosin, 2001) Regulation and prudential measures to keep macroeconomic indicators sound were also insufficient and they were unable to prevent exorbitant capital inflows from coming into the country. (Agosin, 2001, p. 39) As Kim & Park note: "By international standards, many financial sector features were inadequate, including the transparency of public and private financial institutions, bank capital requirements, banking supervision and bankruptcy procedures." (Kim & Park, 2001, p. 86)



Graph 11: Korean call interest rates (BoK, 2016)

The Bank of Korea (BoK) managed the interest rate via call rates of overnight lending until Q2 1999, when the decision was made that the main official interest rate would be set by the bank. The graph on the left shows the BoK pursued a high interest policy. However, yield discrepancy between the won and its main rivals created an onslaught of massive foreign capital inflows seeking higher yield. The discrepancy is particularly visible in comparison with the yen, mark, and dollar, as per Graph 10.

Yield differences combined with opening of the capital account and the implicit government debt guarantee (which proved to be inaccurate for foreign private debt) were the

actual trigger of the intense capital inflows into the country. Companies were happy to take in short-term foreign debt, since it was much cheaper than long-term credit from domestic banks. (Kim & Park, 2001) Net inflows of private capital were roughly 1.1% of GDP in 1990 and peaked in 1996 at 4.1% of GDP (Chui & Gai, 2004, p. 4), while the total external debt more than tripled during the period of 1992-1997. In 1996, 62.2% of total inflows (Khan, 2004, p. 70) consisted of trade credit and other forms of portfolio/other investment-based loans from abroad and were generally short-term in nature. Portfolio transaction inflows rose by 508% from 2.5 billion dollars in 1992 to 15.2 billion dollars in 1996. (Agosin, 2001) Total external liabilities grew to 157.5 billion USD in 1996, 2.5x the amount recorded in 1992, while the debt/GDP ratio rose by 14.5% between 1992 and 1997. However, the most striking is the rise of short-term debt to reserves, which was 216% in 1992 and which skyrocketed to 769% in 12/1997. (Kim & Park, 2001, p. 84)

The problem of overleveraged chaebols was well-known even to the authorities, although they did not intervene in any meaningful way. (Agosin, 2001) Kim & Park wrote that the average debt/equity ratio of the 30 biggest chaebols was (as per Kim & Park, 2001, p. 85) more than "900% at the end of 1996", while Agosin estimates the 1996 figure to have been 380%. (Agosin, 2001, p. 50) Chaebols themselves could not raise credit via international markets so banks (either unregulated merchant or commercial ones) became the main intermediaries in this cause and started to be extremely fragile due to maturity and currency mismatches because they borrowed unhedged and cheap short-term foreign credit in external markets and lent long-term capital to the chaebols. (Roubini & Setser, 2004) (Agosin, 2001) (Kim & Park, 2001) Some problems were even created by the government alone, by forcing banks to allocate loans to the preferred industries (mainly to the chaebols). (Barton, Newell, & Wilson, 2003)

The aforementioned capital inflows were not used appropriately to create higher added value. As Barton wrote, there was an "industry-wide value destruction – companies unable to earn their cost of capital." (Barton, Newell, & Wilson, 2003, p. 1) Companies could not change their style of business to fit the new circumstances that arose from the appreciation of the won and the change in the customer demand for goods. They even increased the production capacity of the same goods, reducing their profit and increasing overproduction. (Agosin, 2001) As per Barton et al., "only electronics and steel industry created value. All the rest were using capital inefficiently." (Barton, Newell, & Wilson, 2003, p. 50)

Table 4: South Korea – Table of Leading Economic Indicators (at the end of the chapter) contains the most important economic indicators and gives the reader an interesting overview of the deterioration of the Korean economy since 1995-1996. In the mentioned years all indicators pointed to a severe slowing down of the economy, although it was still not a full-blown crisis. GDP growth fell from 9.6% p.a. to a still very interesting 7.6% Y/Y and fell even more in 1997 to 5.9% p.a. Private consumption expenditures fell in a similar fashion, housing purchase price growth was lackluster at best, and the KOSPI stock index fell from an average of 1027 in 1994 to an average of 376 in 1997, or 63.3%; all of this despite the fact that M2 & M3 broad money supply was always higher than 15% and the total debt of commercial and specialized banks almost tripled since 1990-1997. What is worse, the debt was financed by foreign money, since the gross external debt to GDP more than doubled from 17.73% in 1993 to 40.43% of GDP in 1997. Interestingly, the major stock index KOSPI started to fall in late 1994 as per the graph on the left. All of this points to a massive value destruction, confirming Barton's claims of inefficiency in the productive spending of money. Moreover, the yen depreciated against USD (and subsequently against the won) and Korea, together with other EA economies, became less competitive in the main export areas (electronics, microchips, cars, oil products, etc.) – KRW/YEN appreciated from the bottom of approx. 0.1040 in 4/1995 to the peak of approx. 0.1455 in 2/1997, which is roughly 40%. (Investing.com) An overcapacity problem in certain sectors, such as microelectronics, decreased overall profits. Kim & Park mention an example of a standard 16MB D-RAM computer module, which cost about 50 USD in 1/1996 and fell to less than 2 USD in 10/1997. (Kim & Park, 2001, p. 82) The export price index fell from 4.9% change p.a. to 4.4% p.a in 1995 and 1996 respectively, (BoK, 2016) mainly due to lower exports of steel, microchips, and oil products, and such a gap created a huge current account imbalance. (Khan, 2004) 66% of the top 30 chaebols had a ROIC lower than the cost of the capital they raised, thus making it harder for them to

Graph 12: Korean KOSPI stock index (Investing.com, 2016)

sufficiently cover their debts in time. (Kim & Park, 2001, p. 85) (Barton, Newell, & Wilson, 2003, p. 52)

All those troubles contributed to intensive volatile capital outflows. Due to capital account imbalances and a general worsening of fundamentals, the won started to depreciate in from approx. 755W/USD late July 1995 to the late March print of 901W/USD, down almost 20%. (Investing.com) The depreciation created considerable pressure on banks due to unhedged foreign currency debt which effectively increased by 20% in KRW terms. However, this was just a mere shower before the thunderstorm. In July 1997 a discrepancy between the offshore and the onshore forward exchange rate occurred, which effectively signalized a potential for further depreciation of the won. Nevertheless, this depreciation was "not enough" in terms of an increase of competitiveness, since other SEA nations devalued (or were forced to do so) by much more and thus their exports, many of which were the same as Korea's, were more competitive, further deepening the ROIC problem of Korean companies.

The first serious casualty of the upcoming crisis was the Hanbo Steel's inability to service its debt in 12/1996 – Hanbo's debt to equity ratio was an astonishing 2200%. (Chekan, 2011, p. 99) It was followed by other chaebols, while Kia's bankruptcy in July 1997 was the hardest hit for the economy. Roubini et al. (2004) state that as many as 23% of the 30 biggest chaebols had been either under considerable financial stress or went outright bankrupt. (Roubini & Setser, 2004) These bankruptcies left overleveraged financial companies and merchant/chaebol banks in severe distress because the foreign capital started to dry up and banks were unable to roll-over their foreign denominated debt. As soon as the crisis started, capital outflows hit the banks and liquidity all but dried up firstly because of the inability of banks to roll-over the debt, secondly because banks lacked liquidity themselves and could not effectively create an interbank market. Korean stocks were hit hard by fire-selling by foreign investors and Japanese banks trying to get as much capital as possible to safe haven assets. A destruction of even healthy assets was inevitable also because of a massive depreciation of the won and the consequent worsening of balance sheets. In 1998, 25% of the total debt was considered as non-performing, which was actually a 34% of the whole Korean GDP. (Agosin, 2001, p. 52)

Since Thailand severed its USD peg in July 1997 and the Hong Kong stock market crashed on 27 October, 1997, there were strengthened incentives for investors to take out cash

from the region as soon as possible. Exorbitant premiums on the won forward exchange rate in October gave way to further depreciation of the won in 1997, from early October's 915.5W/USD to a peak just shy of 2000W/KRW in late December 1997(118.58%). All in all, the won depreciated from its 1995 bottom to its 1997 peak by approximately 165%.

Graph 13: FOREX exchange rates of USD/KRW and KRW/JPY (Investing.com, 2016)

The reasons for such an extreme fluctuation of the exchange rate were numerous. Firstly, Chaebols were not bailed out, which combined with an inherent corruption and vested interests of policymakers led to a huge loss of confidence. (Khan, 2004) Secondly, there were very intensive capital outflows throughout the region, which further tightened liquidity and made debt roll-over for companies impossible. Thirdly, the BoK, as per the government guarantee to commercial banks, started to pump foreign currency reserves into the Korean financial system – all in order to stop a possible bank run, although it proved to be just a mere (and expensive) prolongation of the inevitable. What was worse, the BoK was not transparent about the level of available foreign reserves, and at the peak of the currency crisis in December 1997, "Korea had only USD 5 billion in reserves and more than USD 20 billion in remaining short-term interbank debts." (Roubini & Setser, 2004, p. 58) These problems constituted a serious reason for rating agencies to lower the sovereign credit rating, making servicing the public debt more expensive.

Korean policymakers' policy responses at the beginning of the crisis were lackluster at best. Policymakers expected that a sudden increase in the CAD, the deterioration of exports and export price levels, and the plummeting ROIC of chaebols were just a part of a temporary cyclical adjustment. However, analysts actually perceive the fall of Korean exports as "a canary in a coal mine", issuing warning signs about the health of both the domestic and the world economy due to the interconnectedness with major western and regional economic powers. (Kiersz, 2015) In late August the government issued a guarantee on the financial sector's foreign debts, while later in October the government saved the KIA chaebol from

outright bankruptcy, effectively institutionalizing socialization of losses and confirming the problem of the moral hazard. (Kim & Park, 2001) In early December 1997 the government was forced to ask the IMF for help, and the first package consisting of 21 billion USD was agreed upon by both sides. The IMF conditionality included a tightening of domestic interest rates, causing further outflows of capital and a further depreciation of the won. Fiscal surplus and austerity were forced upon the country next, in spite of the fact that the problem was not caused by government spending but by reckless private lending. However, an additional conditionality required an even greater openness of Korean capital markets, restructuring of chaebols, and also changed regulations to be more accessible to foreigners in order for them to own up to 50% of the company. The conditionality also required bank merge or closures, and severe changes in labor law. (Agosin, 2001) As expected, the introduction of sweeping reforms combined with an austerity and tight-money policy during the sharp recession created even greater problems: government consumption fell from 7.3% in 1996 to 2.1% in 1997 and 3.7% in 1998, which led, together with private sector troubles, to an extreme reduction of aggregate demand: private consumption fell by 11.9% Y/Y in 1998, construction investment deteriorated by 13.3% Y/Y in 1998 and -3.3% in 1999, the whole construction sector decreased by almost 15%, household consumption fell by 6.5%, more closures of companies happened. The industrial sector and services fell by 8.3% and 3% respectively in 1998 Y/Y, credit availability all but dried up and the won depreciated further – more data available in the table at the end of the chapter. (BoK, 2016)(ADB, 2016)(Worldbank, 2016)(IMF, 2016) Since it became obvious that the deal with the IMF was hurting the South Korean economy, a new agreement was forged, which included less strict fiscal targets. (Khan, 2004) (Agosin, 2001)

Citizens, as is usually the case, were hit the hardest. Despite creating a tripartite committee consisting of labor leaders, members of industry and the government, workers had to go through very harsh times because of closures/restructuring of industries. (Khan, 2004) Unemployment skyrocketed from 2.6% to almost 8% in 1998, purchasing power fell by 4.38%, GDP fell by 5.5%, and because of the devaluation of the won inflation rose by 7.5%, and as a consequence household consumption (in the national currency) fell by 6.5%, inflicting severe poverty and inequality on the public (Barton, Newell, & Wilson, 2003)(BoK, 2016) The indebted country had to undergo a severe and rapid internal deleveraging process and NPL write-offs, which on the one hand lowered its external debt, but on the other hand Korea had to use up to 15% of GDP just to recapitalize its banking sector, and the cost of lost

growth opportunity was approximately 17% of GDP. (Barton, Newell, & Wilson, 2003, p. 52) (BoK, 2016)(ADB, 2016)(Worldbank, 2016)(IMF, 2016)

The Korean economy's recovery was relatively swift but it had its price – 1999 Y/Y figure of GDP was higher by 11.3%, private consumption increased by 11.7% (although this was also a result of higher inflation the year before), the percentage of NPLs slowly fell (delinquency ratios of commercial bank loans fell from approx. 8% to around 4%), financial flows slowly regenerated in the upcoming years, and KOSPI jumped by almost 83% Y/Y in 1999 – which is a formidable recovery indeed. Unfortunately, a double dip recession occurred in the year 2000, taking KOSPI down again by 50% Y/Y, after which a steady progress of economic accumulation and conjuncture followed.

From the researcher's point of view, it is evident that most attributes indicating potential economic and financial fragility have been met in the case of Korea. Minsky's credit boom was not caused by the local central bank's irresponsibility but by the excessive amount of liquidity seeking higher yields. Poor or no regulation combined with intense short-term financial flows enabled by previous financial account liberalization caused irregularities within both the financial market and the wider economy. Short-term flows caused a maturity mismatch of loans, mostly used to finance long-term (or outright speculative real estate) investments. Since 1996 indicators steadily flashed warning signs that the economy was everything but healthy. Both the industrial and the service sectors slowed their growth, private and household consumption expenditures were lower, GDP growth fell, while the debt was still growing. Overleveraged companies could not get enough profit using their business model and they practically became by definition Minsky's speculative/Ponzi firms, since they required more loans to pay back the old ones. As soon as the liquidity and confidence vanished, the house of cards collapsed and a harsh internal devaluation and deleverage process followed.

Table 4: South Korea - Table of Economic Indicators	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Growth rate of GDP (% change Y/Y)	9,8	10,4	6,2	6,8	9,2	9,6	7,6	5,9	-5,5	11,3	8,9	4,5	7,4	2,9
Gross domestic savings (% of GDP)	33,75	34,38	33,47	33,37	33,43	33,81	32,71	32,58	34,74	32,80	35,01	33,11	32,44	34,03
Consumer Price Index (% Change)	8,6	9,3	6,2	4,8	6,3	4,5	4,9	4,4	7,5	0,8	2,3	4,1	2,8	3,5
Private consumption (% change)	9.7	8.7	6.5	6.5	8.6	10.3	7.3	4.1	-11.9	11.7	9.1	5.7	8.9	-0.5
Government consumption (% change)	10.5	5.6	6.5	5.0	3.6	3.8	7.3	2.1	3.7	4.9	0.9	6.2	5.6	3.8
Government expenditure, total (% of GDP)	15.2	15.4	15.4	15.1	15.4	15.3	15.9	15.4	17.3	17.5	17.2	18.4	17.8	20.6
Tax revenue (% of GDP)	14.8	13.9	14.3	14.6	14.8	15.2	15.7	14.8	14.9	15.2	17.0	16.5	16.2	14.1
Household final consumption expenditures (% of GDP)	50.7	50.6	51.1	51.3	52.2	52.3	53.3	52.7	49.8	52.0	53.8	54.8	55.5	53.6
Household consumption (% change in national currency)	...	21,01	15,72	13,92	19,58	17,56	14,90	10,65	-6,50	14,68	13,91	10,36	12,30	2,77
Imports (% change)		16,72	0,31	2,48	22,13	32,02	11,26	-3,81	-35,50	28,38	34,01	-12,08	7,82	17,55
Exports (% change)		10,54	6,62	7,31	16,75	30,25	3,72	4,97	-2,83	8,60	19,89	-12,67	8,00	19,29
Agriculture (% change)	-5.9	2.9	8.6	-4.5	-0.2	6.7	4.0	4.5	-7.4	5.4	1.1	1.6	-2.1	-5.3
Industry (% change)	14.2	10.5	2.7	6.7	8.5	8.7	7.1	4.3	-8.3	12.4	11.0	3.7	7.8	5.5
Services (% change)	8.4	9.2	7.2	7.2	7.9	7.9	6.7	6.3	-3.0	8.5	6.6	4.8	7.7	2.2
Manufacturing (Current prices, Y/Y % change)		22,26	10,32	14,04	17,78	18,79	8,18	19,61	2,58	10,86	13,63	2,73	8,74	4,86
Construction (Current prices, Y/Y % change)		31,46	8,48	14,68	10,15	15,86	13,75	1,72	-14,90	-5,57	-1,71	10,15	10,06	19,42
Producer Price Index (% Change)	4,2	4,7	2,2	1,5	2,7	4,7	3,2	3,8	12,2	-2,1	2,1	-0,5	-0,3	2,2
Export Price Index (% Change)	8,6	9,3	6,2	4,8	6,3	4,5	4,9	4,4	7,5	0,8	2,3	4,1	2,8	3,5
Import Price Index (% Change)	8,4	8,3	6,2	5,2	5,1	4,6	5,1	3,4	5,9	0,3	1,9	3,6	3,0	3,1
Current Account Balance (% of GDP)	-0,5	-2,4	-0,7	0,8	-0,8	-1,5	-4,2	-1,8	10,7	4,5	1,9	0,5	0,8	1,7
Direct investment (Mil of USD)	-263.1	-308.8	-433.2	-751.9	-1652.1	-1776.2	2170.7	1110.2	-1768.9	-6759.1	-6667.3	-3778.8	-2037.9	-1991.2
Portfolio Investment (Mil of USD)	161.8	3103.6	5950.5	10102.0	6232.3	11712.0	-15101.8	-14384.0	1224.1	-9189.9	-12176.7	-6706.3	-346.4	-17287.4
Other investment (Mil of USD)	2548.8	3173.6	-179.4	-8090.7	5862.4	6953.8	-11842.6	7321.5	2885.1	10823.4	4513.3	11436.2	-2821.9	10646.2
International (Forex) Reserves (Billion of USD)	14,822	13,733	17,154	20,262	25,673	32,712	33,237	20,405	52,041	74,055	96,198	102,821	121,413	155,352
Property prices Index (Q1 Value)	60,11	70,65	68,46	65,57	63,68	63,49	63,65	65,57	63,99	58,34	59,61	59,95	68,99	76,81
Property prices index (Q1 Y/Y % change)	15,63	17,53	-3,10	-4,22	-2,88	-0,30	0,25	3,02	-2,41	-8,83	2,18	0,57	15,08	11,33
Housing Purchache Price Index (End of Jan; % Change)		20,8	-1,7	-4,7	-2,8	-0,2	0,0	2,5	0,0	-10,6	2,6	0,0	12,8	13,4
General government debt (as % of GDP) (FRED, 2016)	13,37	12,48	12,21	11,41	10,13	8,95	8,24	10,25	14,67	16,75	17,11	17,70	17,55	20,45
Long-term debt, total (% of external debt)	...	...	...	...	54.0	51.5	49.7	63.9	76.3	72.5	67.6	69.6	65.4	65.4
Short-term debt, total (% of external debt)	...	...	...	...	26.9	48.5	50.3	36.1	23.7	27.5	32.4	30.4	34.6	34.6
Delinquency ratios of loans of enterprises (All Banks; %)	...	...	...	...	...	...	...	...	8,0	4,3	2,9	1,9	1,8	1,9
Delinquency ratios of loans of households (All banks; %)	...	...	...	...	...	...	...	...	7,9	3,7	2,5	1,3	1,5	1,8
M2 Money Supply Average (% Change)	27,9	23,1	20,4	21,5	20,0	19,7	20,9	18,0	23,6	13,5	2,2	6,9	11,5	7,9
Credit/GDP gap (End of Dec; Credit from All sectors to private non-financial sector; %)	111,9	123,7	126,3	134,5	138,4	139	147,6	156,5	166,1	156,8	144,5	144,5	150,2	148,7
Bank nonperforming loans to total gross loans (%)								5,80	7,40	8,30	8,90	3,40	2,40	2,60
Domestic credit provided by banks to GDP ratio	50,53	50,11	48,83	48,84	49,87	49,24	52,46	57,61	62,90	68,38	73,60	106,06	116,02	114,74
Unemployment (% change Y/Y)	2,40	2,30	2,40	2,79	2,40	2,02	2,00	2,59	6,84	6,28	4,40	4,00	3,30	3,60
Spread between lending and deposit rates (% p.a.)						0,17	1,34	1,07	1,99	1,45	0,61	1,92	1,82	1,99
Bank of Korea (BoK, 2016)	International Monetary Fund (IMF, 2016)				World Bank (Worldbank, 2016)			Bank for International Settlements (BIS, 2016)				Asian Development Bank		

2.3. Japan – Twin Crises of the 90s

Japan is a special case, and it is important to look at the conditions, indicators, policy responses, and consequences in a longer timeline, mainly due to the fact that Japan was both a culprit and a victim of the 1997 Asian crisis. The reason is that Japan actually went through two economic and financial crises within a period of 8 years.

Japan experienced a harsh landing at the end of the 1980s due to a speculative property bubble that popped in 1989-90, preceded by large liberalization and deregulation policies undertaken due to the forced strengthening of the Yen (also known as "the Plaza accord"). Reasons for troubles of the 1980s property and asset bubble looked very similar to the 1997 Asian crisis. Capital inflows, combined with an insistence of G5 peers to strengthen YEN, pressured the currency to appreciate considerably vs. other currencies – from approx. 260Y/USD in 2/1985 to just a little less than approx. 80Y/USD in 5/1995, or approx. 225%. (Tradingview, 2016)

Graph 14: FOREX exchange rate USD/JPY (Tradingview, 2016)

The Bank of Japan (BoJ) was forced to engage in a low interest rate policy to fight the strengthening YEN, and the government helped the industry with a 6 trillion YEN stimulus package focused mainly on public infrastructure projects. (Lim, 2001, p. 35) An economic conjuncture which followed was supported by an easy-credit policy of the Bank of Japan and

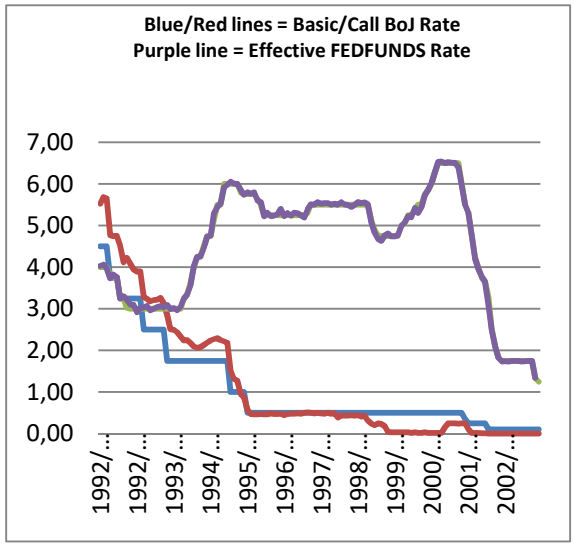
fueled by a newly liberalized financial sector and massive deregulation and privatization. (Lim, 2001) (Molteni, 2000) A capital requirement of 10% for different financial institutions was introduced gradually throughout the 1950-1980s, although prudential oversight was less than stellar, bearing the fact that the average capital/deposits ratio was around 6% in the first half of the period. (Horiuchi, 1998, p. 170) The reasons for a poor financial oversight by the Ministry of Finance and the BoJ was the agency problem and consequently the vested interests of the officials due to the so-called amakudari system – enlisting public officials in managerial boards of private companies, including banks, effectively making the officials hostages of the banks that employed them. (Horiuchi, 1998) Another problem was the moral hazard of bank management. The reason behind this problem was the lackluster accountability of bank officials, who were unable to learn their lesson from the early 1990s crisis. Moreover, banks were defended due to a badly fine-tuned regulation which effectively prohibited new entry to the market. During the early 1990s, the government created a sort of banking safety net, which was supposed to enable troubled banks to be bought by their healthier brethren in order to not let any bank fail. This created an even bigger moral hazard, since officials realized that whatever they do, they will not be held criminally accountable for those acts, and debt holding companies, shareholders, and depositors will mostly incur very low losses, with the main burden being on major banks supported by emergency liquidity lifelines provided by the Bank of Japan. (Horiuchi, 1998)

Meanwhile, individuals and firms were excited to invest both in real estate and at the same time in the stock markets. Those assets were later used as collateral for even more borrowing, creating a vicious cycle of indebtedness and faulty driven collateralized lending. (Molteni, 2000) Lim (2001) claimed that “up to 45% profit earned through stocks held by loan borrowers could be considered as their own capital, hence enabling them greater capacity to borrow more money.” (Lim, 2001, p. 34) Land was a very interesting asset for speculators because of deregulation, the country’s property privatization to cover fiscal expenditures, inadequate taxes, and the fact that it is a naturally scarce resource. (Lim, 2001)

Price competitiveness of Japanese export was increasingly challenged due to the strength of the yen; however, a hefty profit could be reaped by overseas investors thanks to a triple rise of the value of land and even higher growth of equities in USD nominal terms. (Lim, 2001, p. 31) The combination of all these factors was a reason for a speculation-driven asset bubble.

Since May 1989, when the government introduced counter-cyclical measures to stem enormous credit creation focused on real estate, things went badly for construction companies, real estate developers, and finance industry – exactly in accordance with Minsky's blueprint, highly capital-hungry sectors were hit hard. When this bubble popped, it created a massive stock of non-performing loans, which severely damaged the overleveraged financial sector and created a major credit squeeze hitting the embattled Japanese financial system. Nikkei225, the main stock index of the biggest 225 blue chips companies, fell from its all time high of approx. 39.000 points at the end of December 1989 to just a little over 14.200 points in the Q3 of 1992 (more than 60%), before rebounding and creating a trading range between 14.000 and 22.000 points. (Tradingview, 2016) Property also plummeted: "From October 1990, real estate transactions in Japan started decreasing abruptly. In 1991, land prices started dropping. Within one year, from July 1991 to July 1992, residential land prices dropped as shown in the following: Tokyo 15.2%, Osaka 23.8% and Kyoto 27.5%." (Lim, 2001, p. 33) Industrial sector growth fell from 7.9% in 1990 to 3.4% and 1.8% in 1991 and 1992 respectively, holding some ground not sooner than 1995, when the yen started to depreciate. Growth of the service sector was also subdued, oscillating around 2.3% in 1991-

Graph 15: Japanese Nikkei 225 stock index (NIKKEI225, 2016)

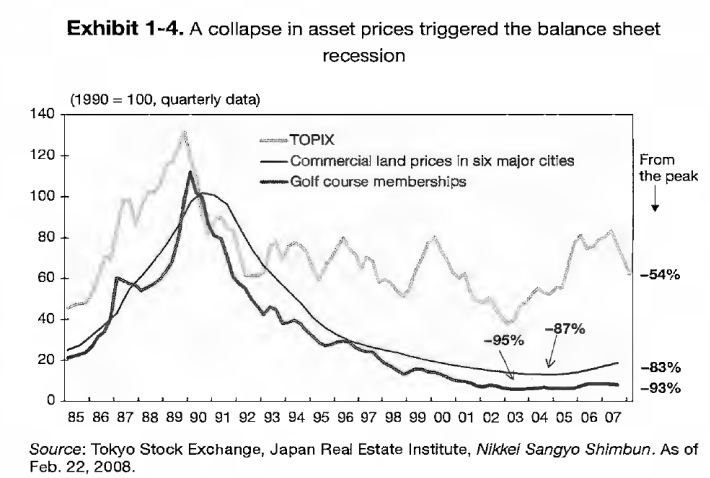


Graph 16: Bank of Japan interest rates vs. FED Funds (BoJ, 2016)(FED, 2016)

1997, a fall from 4% in 1990. The agricultural sector fell by 11.3% in 1991 Y/Y, partly as a consequence of land being used as a trading commodity. (ADB, 2016)

As the property bubble burst, Japanese officials realized – precisely because of the deregulated and liberalized financial sector – that they have little ability to act decisively and effectively. Thus the policy response by both the BoJ and the government was rather inefficient. The government did not bail-out the banks and at the same time did not let any bank fail until 1998, both due to intense public disagreement with bail-outs, and the weakness of governments in the period. (Molteni, 2000)

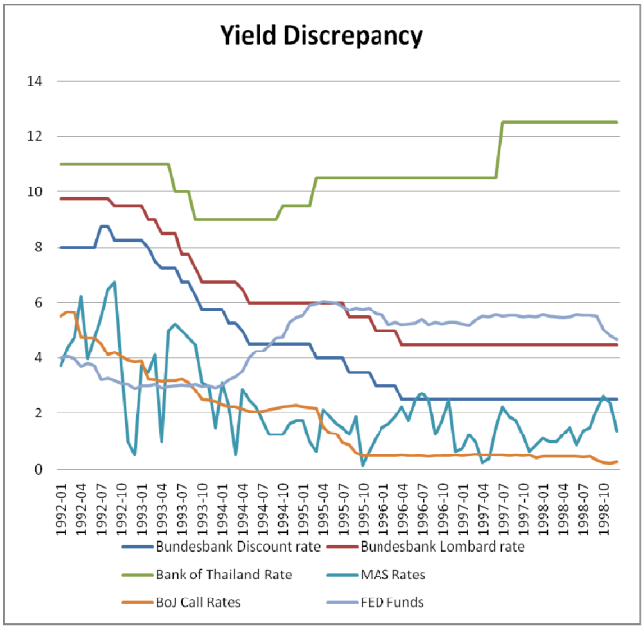
The timeline between 1993 and 2001 will be the main focus of this chapter, since roughly in 1993 the situation stabilized, at least to some extent, and a new economic cycle in East Asia could begin. A new credit cycle started around 1992 when the BoJ gradually lowered the basic rate to increase credit creation and gave some breathing space to the damaged economy. Japan, as a traditional exporter of cars and electronics, had serious problems with exports due to the appreciating yen. However, Japan's main problem was not the USD/JPY currency rate, which potentially influenced the development and exports of other SA/SEA countries. After popping of the early 1990s bubble, companies found out that despite owning considerable assets in real property and land, they became technically bankrupt because the price of commercial real estate plummeted in the period of 1990-2005 by 87% (Koo, 2008, p. 13), and as a result the price of the companies' shares fell and balance sheets deteriorated. The most striking evidence of the fall of land prices is the falling of golf course memberships (a kind of luxury goods) by an astonishing 95%. (Koo, 2008, p. 13) One problem was the staggering amount of NPLs created by the popping of the bubble, another one was a silent de-facto bankruptcy of most companies, which realized that their liabilities were well above their equity, creating the so-called "barantsu shiito fuan shoko gun – balance-sheet insecurity syndrome". (Koo, 2008, p. 126) The result was a slow, silent and painful de-leveraging process: companies with heavy exposures in the troubled sectors started to pay back their debt, prohibiting any re-investment of cash acquired from households and at the same time effectively putting a stop to another debt, thus purging any potential growth from the economy. The fall of corporate demand between 1990 and 2003 was estimated to have been 20% of GDP, which induced a downward deflation spiral in the Japanese economy, which would effectively make citizens the main payers for the mistakes of banks and companies. (Koo, 2008, p. 21)



Graph 17: Collapse of Japanese asset prices (Koo, 2008, p. 13)

The Japanese government introduced a 6 trillion yen stimulus package focused on infrastructure projects to revive the appalling state of the construction sector, and the Bank of Japan lowered interest rates to levels close to zero. However, this money was used to pay back the loans, and because no company or individual was willing to borrow and people were also unwilling to take any loans due to wage cuts, persistent job uncertainty, and a gloomy economic outlook the money was stuck in the banks. It meant that no amount of monetary stimulus could revive the domestic economy because there was virtually no one who would borrow, and it was only thanks to the help of the government and its vast stimulus packages that Japan did not fall to an outright 1930s USA-style depression. (Koo, 2008)

As there were no willing borrowers in the local market, banks had an enormous amount of excess liquidity and they invested abroad – Japanese banks were the main contributor to financial flows within East and Southeast Asia. (Molteni, 2000) (Lim, 2001) It was very tempting to invest in countries like Thailand because the economic prospects were very sound, while interest rates on loans were much higher than anything banks could get in the domestic market. Moreover, USD started to appreciate against its major rivals due to an interest rate discrepancy in 1994-95, leading to even higher profits calculated in yen if the foreign investment was denominated in dollars. The yields discrepancy between Japan and other countries is striking, as can be seen in the following graph.



Graph 18: Japanese yen yield discrepancy (BuBa, 2016)(FED, 2016)(MAS, 2016)(BoT, 2016)(BoJ, 2016)

Japanese banks were also part of the so-called "carry trade" scheme – banks in Thailand or Korea asked Japanese banks to provide credit, and the latter happily provided money since they had an easy access to US and European lenders willing to provide credit due to a high amount of cheap cash circulating in the foreign system. (Morris, 1999)(Goldstein, 1998) As the Yen fell since the first half of 1995, things started to look bleak for the whole East/Southeast Asia. Japanese exports, like electronics and cars, became more competitive against the SA/SEA equivalents and thus highly leveraged banks, which invested in Thailand, Korea and other countries, started to feel the heat. However, despite an increase in the exporters' profits, the situation of domestic companies and financial institutions worsened along with the worsening of balance-sheet troubles.

In 1996 investors realized the scope of trouble within the region, and the Japanese banks, extremely sensitive to any possible losses, were forced to liquidate their positions, further exacerbating the crisis in Asia. Between 3/1997-9/1997 the ratio of NPL was more than 12%. (Horiuchi, 1998, p. 164) Not just the balance sheets were in a bad condition; the interbank rates soared because of "the Japan premium", i.e. a risk premium incurred by Japanese banks since the second half of 1995, which further increased the cost of money for the companies and decreased liquidity. This premium jumped from 10 b.p. to 90 b.p. by November 1998 (Horiuchi, 1998, p. 166). Land, commercial and housing real estate started to breathe thanks to the interest of foreign buyers, who saw them as an interesting investment opportunity. However, ill-timed consumption tax rate hikes and other measures focused on fiscal consolidation undertaken by PM Hashimoto's government further exacerbated the problems of aggregate demand and corporate profitability. (Molteni, 2000) (Koo, 2008) Horiuchi (1998) argues that lack of liquidity caused a classic credit squeeze within the financial system, which eventually spilled-over to the real economy in the form of an inability of consumers and companies to borrow money, decreasing aggregate demand of consumers, investment of companies, and further deteriorating of banks' balance sheets. (Horiuchi, 1998) Koo (2008) on the other hand stands by his argument about the painful de-leveraging of companies and consequently of a crisis of confidence and consumer demand, which is supported by a high amount of domestic savings. He even claims that a credit crunch was not the case in 1997-8, since banks had enough free cash. (Koo, 2008)

Despite the differences among scholars about the causes of the crisis, the government was forced to act to prevent a complete melting of the bank industry in Japan. In 1997 the government issued a blank deposit guarantee in order to prevent a possible bank run on several distressed banks. (Koo, 2008) In Q4 of 1998, the government prepared legislation for bailing-out, restructuring, and a possible temporary nationalization of banks, opening the way for the introduction of market-oriented reforms of banks. (Molteni, 2000, p. 33)

The BoJ lowered interest rates to the lowest level in history in order to increase the likelihood of recovery. In October 1998 the government issued guarantees totaling 30 trillion yen for small and medium enterprises. Moreover, a vast stimulus and tax-cuts program was introduced during November 1998 – a new plan called "New Miyazawa Plan" was created to pump money abroad in order to help Asian economies to recover quickly, since Japan's and Asia's economic recoveries were the opposite sides of the same coin. (Lim, 2001) These measures at least somehow eased the pressure off the banking system. However, they increased government debt rather significantly. Despite efforts by the government, unemployment rose and aggregate demand of citizens drastically deteriorated because of concerns about the pension system and a high unemployment rate. (Lim, 2001) The year 1998 looked miserable: the industrial sector plummeted by 4.5% compared to the year before, manufacturing fell by 4.4%, services fell mildly by 0.7%, the construction sector slumped by 5.4%, and because Asia was in crisis exports fell too. Thus GDP was lower by 2% in 1998, which is arguably not a massive amount (especially when comparing Japan with Mexico in 1994, Thailand in 1997, or Russia in 1998), but given the size of the Japanese economy, the slump was severe. Interestingly, since the Japanese yen and yen-denominated domestic treasury bonds (j-bonds) are considered as a safe-haven asset, international cash flew to Japan in the amount of 126.6 billion USD and 51.3 billion USD in the form of other (speculative short-term) investment for years 1997 and 1998 respectively.(ADB, 2016) The summary of the cash flows is that "hot money" escaped deregulated Asian economies and turned to gold and yen/j-bonds.

The Japanese misery of the 1990s and the perpetual trouble of non-performing loans were aggravated by the 2001 DOTCOM bubble in the USA and the stock market contagion – unemployment rose to a record level of 5%, and loans held by major banks considered as non-performing increased to almost 10% of all loans outstanding by March 2002. Moreover, consumption was still financed by the citizen's savings since real incomes fell, which created even fewer incentives for Japanese citizens to increase spending. (Garside, 2012, p. 170)

Facing another lost decade, the government was forced to introduce sweeping reforms of the economic and banking system. In a 2001 blueprint called Basic Policies of Macroeconomic Management the government decided to restructure and recapitalize banks (even though later in 2002 the government was forced to bail-out the banking system), privatize state assets, provide a stimulus to companies, and increase safety/welfare nets, while major banks were forced to liquidate or write-off loans of zombie companies in order to get rid of 50% of all NPLs in two years. Regulation was also changed from an informal one to a strict set of written rules and processes similar to the Western standard. (Garside, 2012, p. 170)

Japan is one of the largest economies; at the time of the Asian crisis it was the second largest economy in the world. Despite serious troubles of both the real economy and the financial sector, Japan was strong enough to withstand the crisis without involving third parties. However, the real fact about the IMF became obvious: given the magnitude of the East Asian crisis, the regional countries' debt, and the IMF's own available funds, the IMF was incapable of acting as a credible lender of the last resort (its main role) because of the sheer amount of debt and capital flight. The ratio of the IMF's funds to regional debt was about 1:10, capital flight not included. (Haldane, 2004, p. 9) Thus, if Japan had been in serious trouble, the IMF would have been of no help. Koo (2008) claims that the combination of a fiscal and a monetary stimulus saved the country from a complete meltdown similar to the USA's Great Depression – despite heavy damage suffered in 1990 and 1998, the economy did not shrink by any great amount in comparison with other states and GDP growth more or less stagnated. Nevertheless, the problems of low aggregate demand due to concerns of consumers combined with a high government debt, banks drowning in vast ocean of NPLs, and companies paying up their old debt, translated into the so-called "Lost decade" of the 1990s, which actually lasted well into the late 2000s. All in all, because of the troubles of the 90s Japan became the most indebted country in the world, with debt figures oscillating around 93 % of GDP in 1995 and steadily increasing to 133% of GDP in 1999, up to 254% of GDP in 2015 – all while the average wage in Japan stagnated since 1990 up until today (in terms of USD). (OECD, 2016) Despite those staggering figures, 95% of the public debt is owned by the local population and the domestic financial sector, plus, as was said, the Japanese debt is considered a safe-haven asset so it does not create immediate financial fragility. (Garside, 2012, p. 179)

Table 5: Japan - Table of economic indicators	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Growth rate of GDP	5,57	3,32	0,82	0,17	0,86	1,94	2,61	1,60	-2,00	-0,20	2,26	0,36	0,29
Gross domestic savings (% of GDP)	33,40	33,79	32,66	31,41	30,04	29,45	29,08	29,16	27,97	26,32	26,55	24,94	23,80
Consumer Price Index (% Change)	3,1	3,3	1,6	1,1	0,5	-0,3	0,0	1,6	0,7	-0,4	-0,9	-0,9	-1,1
Private consumption (% change)	5,20	2,20	2,10	1		1,67	2,29	0,88	-0,76	1,18	0,41	1,60	1,19
Government consumption (% change)	3,31	4,06	2,67	3,20	3,54	4,34	3,01	0,77	1,24	3,66	4,57	4,18	2,60
Government Expenditure, total (% of GDP)	15,7	15,1	15,7	16,6	15,9	16,1	16	15,2	21,4	18,5	18,3	17,3	17,2
Tax revenue (% of GDP)	13,9	13,4	11,9	11,7	10,7	10,7	10,6	10,4	10	9,7	10,4	9,9	9,1
Household final consumption expenditures (% of GDP)	53.0	52.5	53.2	54.0	55.3	55.4	55.5	55.4	56.1	57.2	56.5	57.3	57.9
Real exports (% change, Y/Y)	2,03	10,73	4,96	0,03	-0,65	-0,68	3,77	13,64	3,88	1,25	5,95	-1,00	-11,01
Real imports (% change, Y/Y as of January)	13,80	-0,31	5,91	-2,44	0,83	6,42	9,61	6,27	-2,55	-5,83	4,29	10,68	-11,18
Manufacturing (Current prices, Y/Y % change)	0,00	6,13	-1,06	-5,02	-7,48	1,59	2,09	1,57	-4,40	-2,62	1,29	-7,48	-3,57
Construction (Current prices, Y/Y % change)	0,00	3,51	0,12	0,88	-4,95	-7,52	0,57	1,18	-5,39	-2,94	-2,59	-6,40	-4,92
Industry (as per ADB; Y/Y, % change)	7.9	3.4	-1.8	-2.3	-2.2	0.4	2.9	1.4	-4.5	-0.1	2.8	-3.1	-1.9
Industry (as per ADB; % of GDP)	37.9	37.5	36.3	35.0	33.6	33.1	32.9	32.7	31.8	31.3	31.1	29.5	28.7
Services (as per ADB; Y/Y, % change)	4.0	4.3	2.7	2.3	2.3	1.5	2.3	1.6	-0.7	0.6	1.7	1.3	0.9
Services (as per ADB; % of GDP)	59.8	60.3	61.5	63.1	64.4	65.2	65.3	65.7	66.4	67.0	67.3	69.0	69.9
Agriculture (as per ADB; Y/Y, % change)	-0.3	-11.3	3.4	-9.3	3.5	-6.7	7.0	-1.2	0.9	0.8	2.0	-8.0	6.2
Agriculture (as per ADB; % of GDP)	2.4	2.2	2.1	1.9	2.0	1.8	1.8	1.6	1.7	1.7	1.6	1.5	1.5
Producer Price Index (% Change)	1.1	0.9	-0.8	-1.6	-1.6	-0.8	-1.7	-0.7	-2.0	-1.4	0.0	-2.3	-2.1
Export Price Index (% Change)		-5,40	-3,62	-7,99	-2,77	-2,15	4,74	1,88	1,32	-10,07	-4,68	3,06	-1,10
Import Price Index (% Change)		-8,19	-6,12	-10,36	-5,52	-0,13	9,72	7,44	-4,89	-9,26	4,68	2,48	-1,43
Current Account Balance (% of GDP)	1.5	2.0	3.0	3.0	2.7	2.1	1.5	2.2	2.9	2.6	2.8	2.1	2.7
Direct investment (Billion of USD)							26,34	21,41	16,91	9,31	34,24	30,45	19,40
Portfolio Investment (Billion of USD)							34,09	-34,22	44,30	26,36	35,70	46,32	104,86
Other investments (Billion of USD)							-37,18	126,57	51,27	-0,93	14,56	-28,94	-61,56
International (Forex) Reserves (Billion of USD)	87,828	80,626	79,697	107,989	135,146	192,620	225,594	226,679	222,443	293,948	361,639	401,958	469,618
Land price(% change)	14,1	10,4	-1,8	-5,5	-4,6	-3,7	-4,4	-4,1	-3,5	-4,8	-5,7	-6,3	-6,7
Central government debt (% of GDP)						93,8	100,6	109,7	120,7	133,4	144,5	151,4	161,8
M2 Money Supply Average (% Change)		3,64	0,59	1,06	2,05	3,03	3,26	3,06	7,39	0,76	2,11	2,78	3,31
M3 Money Supply Average (% Change)		5,26	3,35	3,97	3,96	3,57	3,13	3,23	-5,10	2,56	0,88	0,84	0,88
Credit/GDP gap (End of Dec; %)	212,6	211,6	212,3	217,4	218,8	219,6	217,1	211,4	212,9	202,6	198,2	191,7	187,5
Bank nonperforming loans to total gross loans (%)								5,40	5,40	5,80	5,30	8,40	7,20
Domestic credit provided by banks to GDP ratio (%)	255,34	253,75	261,43	269,97	276,89	283,39	288,47	272,48	294,01	305,45	304,74	295,02	303,04
NIKKEI 225 (End of) % Change	-38,72	-3,63	-26,36	2,91	13,24	0,74	-2,55	-21,19	-9,28	36,79	-27,19	-23,52	-18,63
Unemployment (%)	2,10	2,10	2,20	2,50	2,89	3,15	3,35	3,40	4,11	4,68	4,72	5,03	5,40
Wages (weekly earnings)	3,73	3,43	2,16	2,04	2,22	2,13	1,85	1,50	-0,21	0,22	0,31	-0,65	-1,69
Spread between lending and deposit rates (% p,a,)	2,78	2,46	2,80	2,72	2,44	2,60	2,36	2,15	2,06	2,04	2,00	1,91	1,83
Bank of Japan (BoJ, 2016)	International Monetary Fund (IMF, 2016)				World Bank (Worldbank, 2016)			Bank for International Settlements (BIS, 2016)					
Portal Site of official statistics of Japan (e-STAT, 2016)	OECD (OECD, 2016)			Asian Development Bank (ADB, 2016)				NIKKEI 225 Stock Index (NIKKEI225, 2016)					

2.4. Singapore

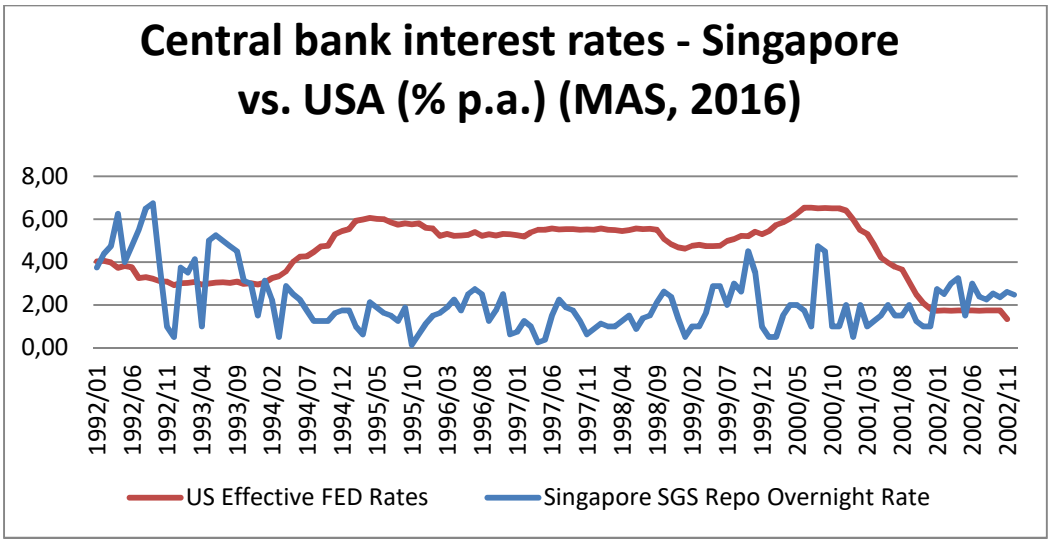
Singapore is a small island nation and thanks to its unique geographical location it became an economic and financial hub of Southeast Asia. It was one of a few countries in Asia which were not devastated by the 1997-8 crisis originating in Thailand. Nevertheless, Singapore also had to go through some hardships.

Singapore, as many other SEA countries, had a stable budget surplus throughout the 1990s and a high level of domestic savings – 54.4% of GDP in 1998. (Ngiam, 2001) The country went through a period of slow and gradual liberalization and deregulation. Nevertheless, Singapore mastered effective prudential regulation and oversight techniques to discourage massive short-term capital inflows from entering the country. At the same time, regulations strictly managed the export of the local currency, and it was prohibited to short-sell the Singaporean dollar by foreigners, i.e. it effectively rendered direct speculative attacks very hard. (Cheng, Marn-heong, & Findlay, 1998) Moreover, it is known that the country has had very good economic fundamentals for a long period of time – high international reserves, focus on FDI instead of portfolio/other short-term flows, very low inflation, a positive balance of trade and budget surpluses, a liquid and sufficiently capitalized financial sector, and most of debt was internal – just a mere 20% of loans was of external nature. (Ngiam, 2001) Singapore is therefore quite a different case in comparison to Thailand, Korea, or even Japan.

The Monetary Authority of Singapore (MAS) manages the local currency named the Singapore Dollar (SGD) and sets exchange rates according to "nominal effective exchange rate", which is trade-weighted against a set of currencies, or, as Cheng et al. said, it is a "real exchange rate targeting", or a "dirty float". (Cheng, Marn-heong, & Findlay, 1998, p. 137) Thus the exchange rate throughout the 1990s was pretty stable both against USD and YEN. The stability was only increased by huge budget and trade surpluses aimed at hoarding of foreign reserves.

Singapore did not have to undergo any era of massive financial inflow euphoria followed by a sudden outflow tragedy; quite the opposite is true – the Repo Overnight rate was fluctuating around 2-4% throughout most of the 1990s. (MAS, 2016)Thus yields

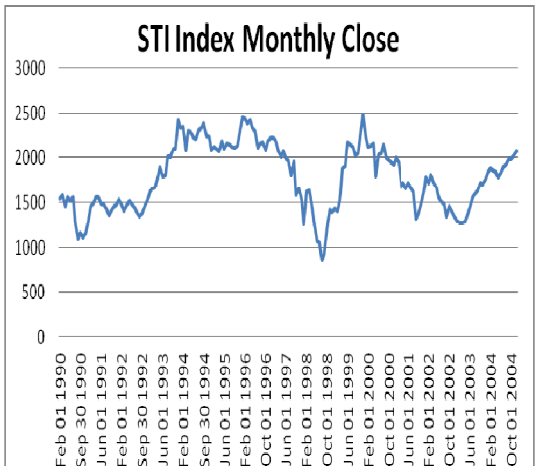
differential had no particular role in this case, and this currency regime de facto discouraged short-term capital from moving in.



Graph 19: SGD vs USD yields (MAS, 2016) (FED, 2016)

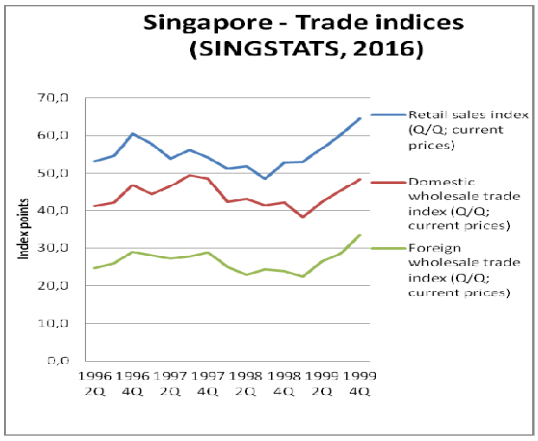
Although the country's economy is relatively liberal regarding the workforce regulation (and became even more liberal after the Asian crisis), Singapore has not undergone any sudden and intensive period of liberalization and deregulation of the financial sector/account, and the financial sector was thoroughly regulated and overseen. The strength of financial and economic supervision in Singapore was and still is crucial to the success and resilience of the financial sector and was acquired by Singapore having been a regional financial hub for decades. Local banks were forced by regulations to have a more than 12% capital adequacy ratio, so they could not be characterized as overleveraged. (Cheng, Marn-heong, & Findlay, 1998, p. 143) The MAS and the government were effective in ensuring the domestic markets' sustainability; for example they introduced sweeping and "drastic measures in May 1996 to cool the private residential property market, which was then showing signs of a bubble." (Ngiam, 2001, p. 148)

Singapore has enjoyed a very interesting growth for a developed nation. The growth rate of GDP was well above 7% most of the time in the years before the crisis struck. While private consumption and household consumption rose on average by 6.8% and 9.5% year-on-year respectively, the purchasing power parity grew by 10.88% Y/Y, the consumer price index printed values in a very sustainable range, oscillating around 2-3% Y/Y until 1996. Interestingly, broad money growth was kept at bay with an average of 10.47% Y/Y, so no economy-endangering excessive lending was the case. Short-term debt was kept at or under

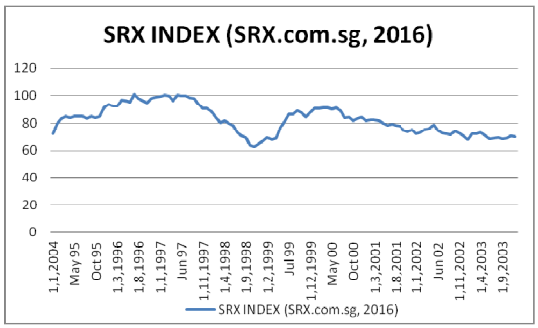


Graph 20: Singaporean STI stock index (Yahoofinance.com, 2016)

the threshold of 20% during the whole 1990s until 1997. However, even though some indicators such as the export price index and the producer price index steadily fell throughout the 1990s, the economy was able to sustain it – exports steadily increased by double-digit percentages until 1996, when it became obvious that there is something wrong in the whole region. (SINGSTAT, 2016) (Worldbank, 2016) (IMF, 2016) (ADB, 2016)



Graph 21: Trade indices (SINGSTAT, 2016)



Graph 22: Singaporean SRX property index (SRX, 2016)

After the outbreak of the crisis in Thailand, Singaporean banks were under pressure because they invested in Thailand, Korea, and other SEA countries. However, even though their exposure to the crisis-hit region was "sizeable" (Ngiam, 2001, p. 146), they did not lend recklessly and they diversified portfolios. Nevertheless, general investors' loss of confidence and the turmoil in Indonesia were among the reasons why local interbank market rates soared to 20% in January 1998 and banks turned to hoarding deposits, marking the turbulent period of tightened liquidity and a generally worse access to new capital. (Cheng, Marn-heong, & Findlay, 1998, p. 140) The MAS later introduced many liberalizing reforms of the financial sector, aimed at internationalizing of SGD and stabilizing Singapore's role as an important regional financial centre.

However, Singapore was hurt in another way as well – tourism from Indonesia, Malaysia, etc. had fallen rapidly due to the crisis ravaging the countries of the tourists' origin. Since other SEA nations were forced to devalue their currencies, Singaporean exports plummeted by 14.9% Y/Y in 1998 (Worldbank, 2016) due to lower competitiveness and due

to the fact that the crisis-embattled countries were badly hit and were unable to import as many goods from Singapore as before. Thus both retail sales and domestic and foreign wholesale trade indices fell from Q4 of 1997 and kept falling until Q1 of 1999. (SINGSTAT, 2016) Similarly to other cases within this study, the major stock index STI actually fell before the crisis – since its peak of 2504 in February 1996 to its bottom of 800 in September 1998, marking a 68% decline. (Yahoofinance.com, 2016) The SPI property price index reached its top at around July 1997 and plunged by 38% as of November 1998. (SRX, 2016)

Graph 23: SGD vs. yen and USD (Investing.com, 2016)

SGD was allowed to devalue mere three days after Thailand unpegged the baht from the dollar in order to save the foreign exchange reserves. Throughout the following months, SGD fell from roughly 1400 SGD/USD to approx. 1820 SGD/USD, or a little more than 30%, just to find a kind of equilibrium point somewhere around the 1700 SGD/USD handle. The same amount of depreciation could be seen in the SGD/JPY pair, where the fall from the peak to the bottom was approx. 31%. (Investing.com, 2016) Nevertheless, there were no speculative attacks against SGD during the 1997 Asian crisis, and since the second half of 1999 the MAS stabilized SGD in a range similar to pre-crisis levels. (Ngiam, 2001, p. 164)

As Singapore is a trading nation, the crisis had severely affected trade both inside (connected with the fall of domestic consumer confidence, retail sales, and tourism) and outside the country. The fall began in Q1 1997, de facto before any crisis had started, and continued down until Q2 1999.

Unemployment jumped from 2.4% in 1997 to 3.2% in 1998 (Ngiam, 2001, p. 153), or from 2% to 3.5% as per ILO estimates. (Worldbank, 2016) The government reacted pro-actively to decrease the consequences of the crisis. Firstly, in order to give a new breath to the slumping real estate sector, it removed the stamp duty required to be paid by sellers of real estate who owned the property for less than 3 years and reduced supply of land available for

sales. (Cheng, Marn-heong, & Findlay, 1998) The government also introduced a stimulus package in 1998 worth 2 billion SGD in order to stimulate businesses via tax rebates, infrastructure upgrades, and training for workers. It was later decided that the first package was not sufficient and so the government introduced a second package worth 10.5 billion SGD focused on lowering business costs. (Ngiam, 2001, pp. 164-165) Moreover, relatively high wage flexibility of public and unionized workers through a tripartite-style system called the National Wages Council enabled a temporary lowering of wages of workers, which decreased companies' and public bodies' expenditures substantially during the crisis while saving jobs in the process. (Ngiam, 2001)

Singapore was not in such a dire condition that it would be forced to call on the IMF and the international community for help. Actually, the country, despite being a very open and small export-oriented economy, could withstand the crisis in a pretty good shape. The GDP increased in 1999 and 2000 by 6.1% and 8.9% respectively, private consumption got higher by 9.1% and 14.7% respectively, and in fact all other indicators pointed to a healthy recovery, in spite of a double dip recession it had to go through in 2001. Thanks to the previous prudent oversight of the MAS and the effective regulation by the government, combined with very good fundamentals, Singapore, despite a temporary slowing of the economy, came out of the crisis in a very good shape and maintained its solid reputation as a financial and business centre of the region.

Table 6 : Singapore - Table of economic Indicators	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Growth rate of GDP (% change Y/Y)	10,04	6,69	7,09	11,54	10,93	7,03	7,53	8,29	-2,23	6,10	8,90	-0,95	4,21
Gross domestic savings (% of GDP)	45,69	47,17	47,63	47,05	49,02	50,54	51,23	52,62	52,87	49,53	47,19	43,97	43,13
Consumer Price Index (2010=100; % Change)	3,43	2,26	2,29	3,10	1,72	1,38	2,00	-0,27	0,02	1,36	1,00	-0,39	0,51
Private consumption (2010 market prices; % change)	7,45	6,12	5,78	11,60	7,51	3,66	6,40	5,89	-3,01	9,07	14,68	6,66	4,94
Total government expenditure (% of GDP)	...	...	...	...	...	...	...	...	19.2	18.0	18.2	21.1	18.1
Tax revenue (% of GDP)	...	...	...	...	...	...	...	...	14.0	14.5	14.9	14.7	12.8
Household consumption (% change in national currency)	0,00	8,06	8,29	16,00	13,41	5,04	7,74	8,01	-4,95	7,07	13,59	6,03	4,43
Exports (% change)	23,10	11,78	9,99	14,89	25,08	30,36	5,61	0,73	-14,87	9,02	16,85	-9,02	3,37
Imports (% change)	23,99	9,81	9,33	17,96	18,94	30,70	6,40	-0,09	-18,24	13,31	21,38	-10,83	3,58
Manufacturing (% change, Y/Y)	9,5	5,4	2,3	9,7	12,7	10,0	2,8	4,3	-0,7	13,0	15,1	-11,6	8,5
Services (% change, Y/Y)	10,7	6,9	7,8	12,3	10,0	6,2	8,2	9,1	-2,6	5,7	7,9	2,4	4,5
Industrial production index (% change)	10,01	5,43	2,37	10,20	13,01	10,33	3,33	4,49	-0,33	13,89	15,34	-11,62	8,42
Retail sales index (% change as of Q1 of year; current prices)	8,82	-1,19	10,40	14,31	-7,45	1,20	-2,03	-11,40	3,12	26,84	15,50	-5,16	1,77
Wholesale trade index (% change; Q1 of year; current prices)	0,00	0,00	0,00	0,00	0,00	0,00	5,90	2,80	-4,50	-9,70	29,80	12,10	-18,00
Producer Price Index (% Change)	0,00	-4,10	-4,38	-4,35	-0,42	0,02	0,11	-1,15	-3,04	2,10	10,09	-1,59	-1,46
Export price index (% change)	0,00	-5,40	-6,55	-2,25	-4,06	-1,73	-0,94	-1,49	-1,90	0,18	5,76	-3,83	-2,23
Import price index (% change)	0,00	-3,20	-3,41	-2,03	-1,02	-0,06	-1,17	-1,48	-1,90	1,69	8,97	0,27	-0,65
Current account balance (% of GDP, Y/Y)	8,6	10,7	11,3	6,9	15,5	16,4	14,4	15,3	21,6	17,0	10,8	13,9	13,5
Current Account (Mil. of USD)	5 695,7	8 419,6	9 535,5	6 636,4	17 205,1	20 474,4	19 614,1	22 694,9	30 922,6	24 844,0	17 856,5	22 169,8	22 207,9
Direct investment (Billion of USD)	-6,42	-7,53	-1,45	-4,10	-6,07	-6,33	-2,86	-4,87	-3,91	-17,87	-14,94	5,73	-5,95
Portfolio Investment (Billion of USD)	1,88	1,57	-4,06	8,02	11,80	21,23	21,52	29,97	-2,69	28,20	36,30	40,64	24,51
Other investment (Billion of USD)	-1,47	3,54	2,56	-4,19	8,42	-7,00	-4,34	-13,59	31,94	12,73	-11,37	-23,18	1,10
International (Forex) Reserves (Million of USD)	9 918,2	7 304	9 919	12 048,1	7 352,1	12 104	10 397,7	11 704,9	4 885,8	7 171,3	11 970,6	-1 801,4	2 125,5
Central government debt (as % of GDP)	77,84	78,96	81,84	72,83	70,20	72,72	72,65	71,33	82,62	87,86	84,05	94,47	107,02
Long-term debt, total (% of total debt)	80.5	79.1	79.6	82.2	86.6	85.0	79.8	79.9					
Short-term debt, total (% of total debt)	19.5	20.9	20.4	17.8	13.4	15.0	20.2	20.1					
Broad money growth (% change)	19,98	12,45	8,90	8,45	14,43	8,50	9,79	10,27	30,25	8,51	-2,05	5,86	-0,33
Credit/GDP gap (as of 31,12,YEAR; %)	97,6	96,9	97,7	95,5	95,5	103,4	109,6	113,8	111,7	111,6	104,3	108,6	111,3
Bank nonperforming loans to total gross loans (%)										5,3	3,4	8	7,7
Domestic credit provided by financial sector (% of GDP)	58,60	59,90	58,41	56,72	55,64	59,11	63,54	69,42	85,11	82,42	76,65	90,41	73,69
SRX Property Index Non-landed (end of Jan; % change)							22,70	6,31	-10,97	-24,18	35,32	-9,69	-12,20
SRX Property Index landed (end of Jan; % change)							9,35	-0,89	-5,22	-29,95	37,76	-3,62	-14,68
Unemployment (% of total labour force)	1,70	1,90	2,15	2,05	2,15	2,20	2,18	1,95	3,45	3,80	3,70	3,70	3,70
STI Stock Index (% change (Forecast-Chart.com, 2016)	-22,04	27,90	3,21	59,12	-7,67	1,20	-2,19	-30,99	-8,96	78,04	-22,29	-15,74	-17,40
Spread between lending and deposit rates (% p,a,)	2,69	2,95	3,08	3,09	2,88	2,86	2,85	2,85	2,84	4,12	4,12	4,13	4,48
Department of Statistics Singapore (SINGSTAT, 2016)	IMF (IMF, 2016)		SRX (SRX, 2016)		World Bank (Worldbank, 2016)			Bank for International Settlements (BIS, 2016)				ADB (ADB, 2016)	

2.5. Contagion

Contagion in the 1997 Asian crisis had multiple faces and consequences, which, to some extent, overlap with each other. Thailand and Korea are quite similar examples, Japan is a case of its own since it both caused the crisis and became the victim, while Singapore is a case of economic contagion-hit economy going through recession rather than an outright crisis. Firstly, Thai and Korean banks and financial institutions were involved in speculative lending to the real estate sector. At the same time, financial entities mostly relied on foreign capital, notably Japanese and German banks, and together with their clients they were badly overleveraged. As soon as things started to sour, foreign banks tightened liquidity; a local bank could not borrow cheap money anymore and subsequently could not refinance the short-term debt of its clients. This created more tension within the banking system with a further tightening of liquidity, further problems in the troubled sectors, and further bank troubles. Thus real estate developers failed to pay their loans, and banks became stressed by the increasing number of NPLs; troubles of the real estate sector spilled over to the banking sector and consequently the contagion spilled to other sectors of the real economy due to banking troubles. The Korean government wanted to help the ailing banking sector and spent its foreign exchange reserves. Thailand became an outright victim of speculators, who bet against the currency, while the central bank hemorrhaged foreign reserves during the process in order to defend the currency peg. Anyway, both cases resulted in a severe devaluation of the local currencies, which exacerbated troubles within the economy because companies and banks were unable to pay or roll-over short-term foreign-currency denominated debt.

Secondly, such a devaluation of some countries made their exports cheaper in the international markets, damaging trading interlinkages of the pre-crisis equilibrium. When Thailand and Korea devalued, it became increasingly problematic for Indonesia or Malaysia to export their products of a similar type and quality for a competitive price, thus throwing them into recession. Eventually, as a consequence of Thailand's and Korea's devaluation combined with the depletion of foreign reserves and speculative attacks on currencies, other countries' currencies also devalued, which became a direct proof of contagion via currency. (Allen & Gale, 1997) Japan would love to devalue the currency but since the yen is a safe-haven asset, its value actually increased and thus Japanese exports plummeted. (Goldstein, 1998)

Thirdly, there was intra-regional contagion due to financial and trade linkages. Singaporean, Korean, and Japanese banks invested in Thailand and other regional economies. As soon as Thailand started to dwindle, the banks' activities went out to generate losses which put banks in other countries, especially in Korea, under severe stress. Moreover, the regional-wide tightening of liquidity and the eventual crisis in Korea and other countries created an even more severe and stressful environment in both the financial sector and the real economy. Moreover, investors took the region as a whole investment body, partly because of trade and financial linkages between the countries, partly because of the psychological effect of the previous success of Asian tigers and the investors' final realization that they did not understand the new market correctly. (Garnaut, 1998) This fact forced loss-averse Japanese banks to withdraw money from the region because they had enough troubles with NPLs from the previous crisis and domestic companies' balance sheets soured even more than before. Other financial entities joined the herd by withdrawing the funds from the region, while speculators joined the ride in order to make money using sell orders on falling markets.

Fourthly, inter-regional contagion could be observed between regions. Due to the interlinkages between global financial markets, investors frightened by the troubles in Asia behaved like a herd and pulled their money out of risky assets in developing nations across the globe, for example Russia, Central Europe, or Latin America, and turned the cash to yen and dollar.

2.6. Aftermath and summary of the 1997-98 East Asian Crisis

The Asian crisis continued to some extent even in 2001-2002, since a double dip recession was experienced in all countries drawing back growth of aggregate demand, stock and asset price levels and exports, thus decreasing GDP growth and a potential for effective recovery. The reasons were general problems in the developed world, namely the USA's and the EU's poor growth. These were exacerbated by bursting of the Dot.com bubble, the 9/11 terrorist attack in New York, and followed by the fall of Enron due to accounting malpractices, forcing investors out of risky assets such as stocks or emerging markets and to safe-haven assets.

Nevertheless, at least since 2003 a steady growth of the Asian region is clearly observable on multiple fundamentals, such as exports, unemployment, retail sales, or industrial/services indices. The lessons learned by Asian countries in 1997-8 were transformed into hoarding reserves in the form of the US dollar by buying US treasuries, the US dollar, or other US denominated assets. On the other hand, excessive buying of the US debt worth 4.3 trillion USD enabled an enormous surplus of available capital in the USA, which was used to finance the consumption and housing bubble, which ultimately burst in 2007. (Lo, 2009, p. 18)

The Asian crisis was a result of a combination of various factors. Firstly, a liberalization of the financial account and deregulation of the financial sector, all in accordance with the Washington consensus, combined with lackluster oversight, exposed East Asian countries to volatile short-term capital flows entering the country during conjuncture and severely increasing the systemic fragility along with the current account deficit. These flows were available due to the major central banks' loose policies, which encouraged capital to search for high yields. This is especially true of capital of Japanese origin, where great surplus was available, but no one was willing to take out loans because of severe balance sheet troubles caused by the asset and property bubble in the early 1990s.

Secondly, since broad money growth was steadily counted in double-digits percentage, overinvestment in speculative assets such as real estate (and also overinvestment in particular "overcrowded" sectors like microchips in South Korea), caused value destruction of a great scale. The devaluation of the Chinese Yuan in 1994, which set up a competitive advantage against all other SEA countries, can be considered a major warning. Another major warning could be the combination of the falling of the SET index since 1995 and the bankruptcy of the Somprasong real estate developer in early 1997. The forced abandonment of the baht's dollar peg can be considered as the final wake-up call.

Thirdly, short-term foreign loans which were used to finance these investments proved to be a problem as soon as liquidity dried up due to worsened fundamentals and wake-up calls. Companies started to experience problems with the roll-over of short-term debt and were forced to file for bankruptcy, causing unemployment and a severe reduction of aggregate demand. Liquidity in the market virtually froze, spiking spreads on short-term loans and effectively prohibiting any further lending to companies or individuals. A run on financial institutions in the form of freezing the interbank market and offshore channels continued to

the extent that they were forced to fire-sell their assets to the falling markets, thus exacerbating the decline. Eventually, banks and non-bank financial institutions declared bankruptcy.

Fourthly, as the situation deteriorated, pegged or semi-pegged currencies experienced speculative attacks, overwhelming local central banks, which were forced to devalue the currencies they managed. Japanese banks were very loss-averse and they were among the early and main actors that started massive capital outflows from the troubled countries. Others joined in because liberalized capital accounts were open to such rapid and virulent fluctuations of capital flows.

Fifthly, economic and bank troubles from one country spilled-over to other countries via trade linkages, lowered exports, financial linkages, and competitive devaluation. Contagion affected not only the whole region of Asia, but also the whole market of emerging economies.

Even though the Asian crisis seems to be a perfect example of a “classic” economic and financial crisis, it is not really the case. Theory suggests that stocks are overvalued for some time before the crisis, while the reality of 1997 was that the main stock indices were in steady decline since at least 1995. Minsky’s theory is actually accurate, but it lacks the fact that it was not the local central bank which created a surplus of capital due to its loose monetary policy; rather, it was a problem created by the combination of a globalized finance sector and major foreign central banks, like in Japan, Germany, and the USA, which engaged in low-interest policy. The economic recession in Singapore was caused purely by contagion from other countries, even though fundamentals, the current account surplus, prudent oversight, and other indicators painted an image of a healthy and economically sustainable development.

3. 2007-2008 Great Recession

3.0. Short historical overview

The Great Recession was an economic and financial crisis of developed countries spearheaded by the USA, which eventually spilled-over to Europe and other states, marking the worst world-wide crisis since the 1930s. The reason was an excessive amount of capital available in developing countries, which was turned to US treasuries, combined with loose Fed policies. This enormous amount of capital was used to finance consumption, real estate speculations, and stocks in the USA. Since real estate price indices were steadily growing and demand was higher than supply, everyone was in a hurry to buy some property. Financial advisors sold mortgages to virtually anyone who was willing to sign a contract, despite the fact that the client might become insolvent due to his/her inability to earn enough money. This "obstacle" was excused by the fact that the always-rising prices of collaterals (houses) would pay back to the bank not just the value of the loan but also the interest the client would eventually fail to pay. These low-quality loans were so-called sub-prime mortgages. American banks enjoyed the situation, steadily increasing leverage, and created various unregulated financial derivates such as MBSs or SIVs chained to mortgages of varying quality and sold them to their respective clients all around the world with a promise of modest returns with minimal risks involved.

As soon as the prices of real estate properties started to dwindle and fall, the house of cards made of toxic derivates began to crash. Banks were experiencing severe troubles with writing off the debts, and their balance sheets turned negative. Interbank spreads spiked and liquidity tightened due to a lack of confidence among banks that their troubles were indeed manageable. Lehman Brothers, an investment bank with a hundred year history, became insolvent and asked the government and the Fed for help. However, officials declined their support for the ailing bank, and Lehman was forced to go bankrupt. The bankruptcy of such a scale created a massive break of confidence and virtually wiped out any available liquidity from the interbank system, freezing it in the process. The Fed offered the problematic financial sector a lifeline of liquidity in order to unfreeze the market and forced takeovers of some problematic banks by their stronger peers. Moreover, the Fed introduced a debt-buying program of quantitative easing, or, more trivially, it turned on the money printing presses and flushed the liquidity to the banking system in a hope that the banks would be more willing to lend new credit to companies. However, the consequence was "a brutal" decline of the US

dollar and a subsequent increase of price levels of commodities which share an indirect correlation with the US dollar index – electronic gold (XAUUSD symbol) reached all-time highs of around 1920 USD/oz (Investing.com), while West Texas Intermediate, the crude oil benchmark, printed all-time highs, roughly 147 USD/barrel. (Investing.com, 2016) The price levels of grain, rice, soya, metals, and other materials grew thanks to the weakness of the US dollar and the massive rise of China's imports. China's stimulus-fueled recovery created a kind of commodity bubble, which on the one hand helped commodity-exporting countries, but also slowed down the lackluster recovery of western nations, commodity importers.

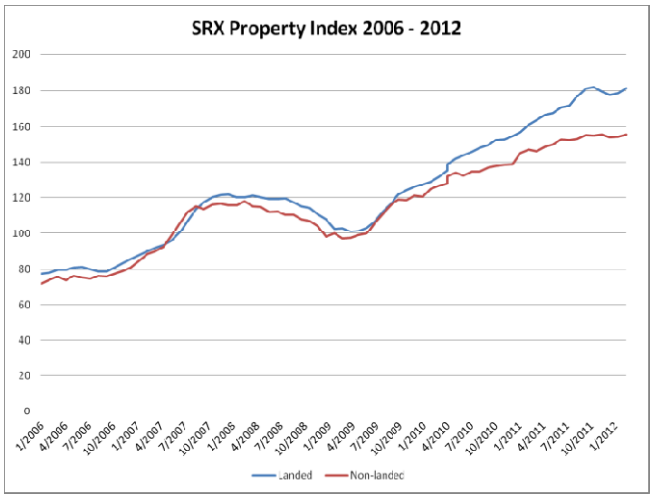
A contagion effect was noticeable, since suddenly the troubles of the US banking sector started to be felt all around the globe. This effectively tightened liquidity world-wide, and interest spreads spiked. The contagion effect was most notable in the European Union, where Greece's structural defects combined with shadow accounting enabled by Goldman Sachs suddenly arose in the form of near-bankruptcy. Subsequently other so-called PIIGS countries were in serious trouble verging on sovereign debt default, which is not permissible within Eurozone borders. Meanwhile, global growth fell from +3% to -0.6% in 2008 and 2009 respectively, and world trade growth plummeted by 11.3% Y/Y in 2009 as a result of the inability to obtain credit from banks. (Palit, 2011, p. 12)

When the spill-over effect reached the shores of East and Southeast Asia, many observers realized that the most affected countries were the ones most intertwined both financially (via financial linkages) and economically (via trade linkages, supply chains, exports) with the western world – notably Singapore, South Korea, Japan, or Taiwan. Other countries, which had no crucial financial interlinkages with the western world, such as Thailand or Vietnam, experienced a slowdown of the economy due to a decrease of exports (both to Asia and the West), severed supply chains, and generally slower trade. (Palit, 2011) (Llaudes, Salman, & Chivakul, 2010)

This chapter will be devoted to the situation in Asia, to check out whether countries were capable to defend themselves in the most widespread economic turmoil of the last 80 years.

3.1. Singapore

Singapore enjoyed quite an interesting growth of the GDP after the double-dip recession in 1998 and 2002, even more interesting given the fact that it belongs to the club of rich developed countries. The GDP was growing by almost 9% on average from 2004 to 2007. (SINGSTAT, 2016) Government expenditures and central government debt declined, while the current account was in surplus – all thanks to effective economic policy and fiscal discipline. Inflation was steadily at or around 2%, the savings rate was about 50% of GDP, despite the low interest rate policy of the MAS which was aimed basically at maintaining inflation and exchange rate stability, not increasing credit growth. (SINGSTAT, 2016) (Worldbank, 2016) Despite the MAS's goal, it is important to say that broad money growth started to exhibit moderately high values in the period of 2006, 2007 and 2008, printing 19.37% p.a., 13.41% p.a., and 12.05% p.a. respectively, indicating a higher issuing of credit.

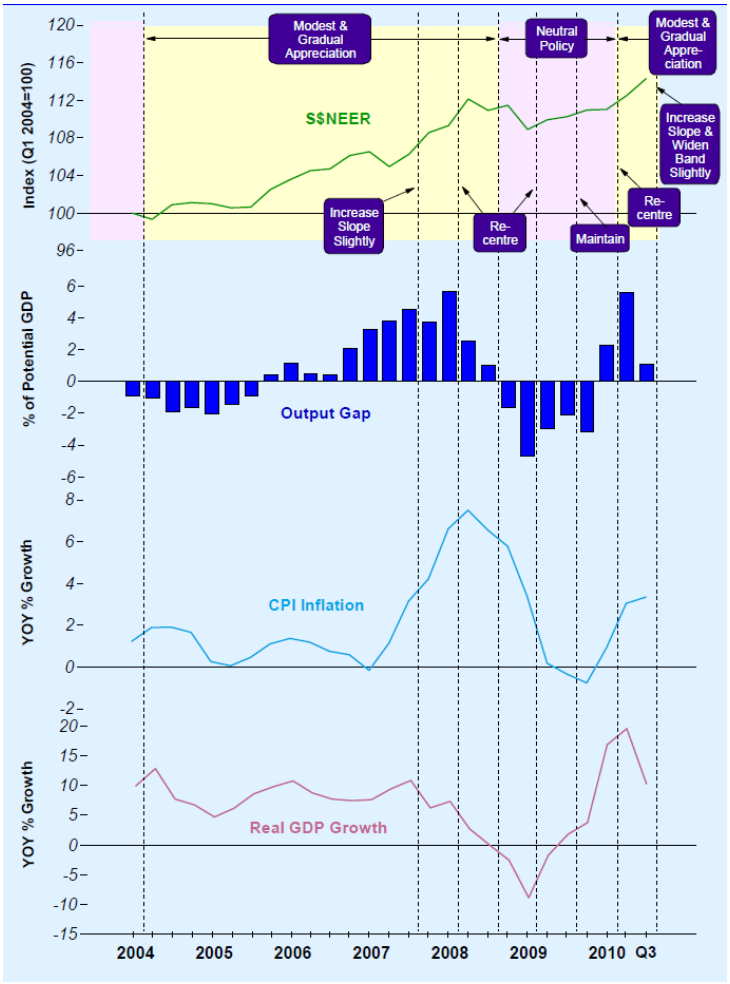


Graph 24: Singaporean SRX property index (SRX, 2016)

Unfortunately, data about the amount of short-term debt and foreign debt is publicly unavailable in mainstream databases since 1997. (Worldbank, 2016) (IMF, 2016)(ADB, 2016)(SINGSTAT, 2016) Notably, the SRX property index grew by 50% from July 2006 to January 2008, printing 80 points and 120 points respectively. Such a change in the property index gives an image of where the newly issued credit was spent. (SRX, 2016) Nevertheless, industrial production steadily increased together with a double-digit growth of exports, which is very important for such a small open economy as Singapore. (ADB, 2016) (SINGSTAT, 2016) (Worldbank, 2016) There was nothing like yield discrepancy between Singapore and any other country, mainly thanks to the managed exchange rate band and low local interest rates throughout the period. Actually, during the period of Q2 2006 to Q2 2007 the Fed Funds yields were the highest in comparison with other researched currencies, so the problem of yield discrepancy being the source of intensive capital flows to Asia is not relevant for the 2008 Great Recession. (FED, 2016) (MAS, 2016) (BoJ, 2016) (BoK, 2016) (BoT, 2016)

Singapore went through a significant period of liberalization after the 1998 Asian crisis, focused on internationalization of the SGD, flexibility of the work force, and opening of the capital account in order to preserve its status as a regional financial center. On the one hand, this move created incentives for higher growth; nevertheless, since the financial sector generally became a more important contributor to the GDP, liberalization also increased the possibility of serious financial-linked troubles. (Jordan, 2009)

Singapore became the first East Asian country to experience recession due to a spill-over effect from what was at the time primarily the USA's financial crisis. (AEI, 2008) (Balakrishnan, 2008) Being so intertwined and open to external trade with western nations, it became a burden as soon as the developed world's economies came under severe stress in late 2007. Singaporean financial institutions, namely Temasek Holdings and the sovereign fund the Government Investment Corporation of Singapore, had a heavy exposure to western banking stocks connected to toxic derivative assets chained to sub-prime mortgages and sold by US banks. The GIC's explicit portfolio at the time of the crisis is unknown but it is expected, given the value of 185 billion USD, that it took a severe beating during the crisis. Temasek invested around 40% of its whole portfolio in various western banks, such as Morgan Stanley, Merrill Lynch, or Barclays, which were subsequently bailed-out or were in serious troubles due to the toxicity of their portfolios. (Jordan, 2009, pp. 99-100) Financial companies were hit hard by their inability to obtain credit, and liquidity was a scarce resource again, despite the fact that neither banks, nor companies were generally overleveraged. (AEI, 2008) However, the significant losses connected to the troubled portfolios



Graph 25: Singapore: Important indicators (MAS, 2011, p. 313)

of Temasek, the GIC, and others are a stark example of the fact that prudent oversight was not completely functional. Since the country's main export partners were Japan, the US and the EU, which were badly battered by the crisis, Singapore's exports, consisting mainly of electronics and IT hardware, pharmaceuticals, and chemicals, plummeted by an astonishing 14.5% Y/Y in 2009, from a 10.3% growth in 2008. (Worldbank, 2016) GDP growth was down from 9.1% in 2007, through +1.8% in 2008, and falling by 0.6% in 2009 Y/Y. (SINGSTAT, 2016) Industrial production fell by 4.18% and 4.16% Y/Y in 2008 and 2009 respectively, while retail sales, despite keeping relatively good figures in 2008, finally fell by 8.28% Y/Y in 2009 because private consumption fell by 1.1% Y/Y in 2009 and household consumption stagnated at 0.27% Y/Y in 2009. Moreover, 2008 is the year when the exports growth was smaller than the growth of imports, signalizing potential problems with competitiveness. (SINGSTAT, 2016) (IMF, 2016) The stock index STI fell by roughly 50% Y/Y in 2008. (STI, 2016) Regarding the property market in 2009, SRX non-landed and landed index fell by 18.77% and 14.39% respectively, but rebounded in the years to come. (SRX, 2016)

The reason for such a huge slump of exports was partly the weakened demand of the West, and partly the problem with SGD, which increased its value against some East Asian currencies, notably the Thai baht. As a consequence, Singapore's exports were less competitive, and people, mainly the well-educated, but also the economic migrants employed in the exporting sectors of the economy were laid off – unemployment increased from 2.24% in 2008 to 2.85% in 2009. (IMF, 2016)

The government reacted swiftly to the precarious situation and introduced stimulus packages aimed at various parts of the economic sector. The government decided to invest 20.5 billion USD in late January 2009 in order to preserve jobs by enacting job-credit schemes (the country paid a part of employees' salaries out of its own coffers), increasing job creation, new lending, competitiveness, and building infrastructure. Businesses were granted various tax reliefs, and the standard corporate tax went down by 1% to 17%. (Dowling & Rana, 2010, p. 172) Moreover, in order to prevent bank runs in an environment of a general lack of confidence, the government guaranteed bank deposits. (Jordan, 2009, p. 104) These stimuli were combined with monetary action by the MAS, which introduced zero nominal effective exchange rates during October 2008 (called "NEER"[4]). Interestingly, the MAS itself

[4] NEER – Nominal Effective Exchange Rate, the basic band where the currency fluctuates

acknowledges that the troubles were solved mainly by fiscal rather than monetary policy, given the fact that a massive fiscal stimulus program accounted for around 9% of the GDP. (Dowling & Rana, 2010, p. 172) (MAS, 2011) The MAS later decided to preemptively choke the liquidity surplus by returning the NEER interest policy to pre-crisis levels in April 2010 in order to prevent a possible property bubble and higher inflation. (MAS, 2011)

Thanks to the bold decisions made by both the government on the fiscal side and the MAS on the monetary side, Singapore crawled out of the recession, and in 2010 the country's GDP growth rebounded from -0.6% to almost 16% Y/Y. All other indicators, like private consumption, PPP/C, exports, etc. rebounded as well, while unemployment went back to pre-crisis levels in 2010 and 2011.

Table 7: Singapore - Table of Economic Indicators (2003-2014)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Growth rate of GDP (% change Y/Y)	4,44	9,55	7,49	8,86	9,11	1,79	-0,60	15,24	6,21	3,67	4,68	3,26
Gross domestic savings (% of GDP)	45,17	49,48	51,20	52,17	53,95	51,32	51,20	54,29	51,59	53,41	53,43	53,37
Consumer Price Index (2010=100; % Change)	1,66	0,43	1,02	2,10	6,52	0,60	2,80	5,25	4,53	2,38	1,01	-0,50
Private consumption (2010 market prices; % change)	0,73	5,02	3,41	3,25	6,15	3,49	-1,13	5,89	4,26	3,54	3,08	2,15
Total government expenditure (% of GDP)	17.7	16.1	14.5	14.5	13.6	16.4	17.1	14.1	14.5	14.2	13.8	
Tax revenue (% of GDP)	12.5	11.7	11.6	11.9	12.9	13.9	13.1	12.6	13.1	13.7	13.4	
Household consumption (% change in national currency)	0,65	5,07	3,27	4,91	10,81	8,42	0,27	9,19	8,23	6,72	4,80	3,43
Exports (% change)	16,84	24,21	18,22	20,10	16,75	10,28	-14,51	27,26	15,92	1,79	2,34	1,14
Imports (% change)	12,53	27,79	16,81	18,94	15,45	16,21	-16,57	23,38	16,36	3,75	2,39	1,35
Manufacturing (% change, Y/Y)	3,0	13,8	9,5	11,9	5,9	-4,2	-4,2	29,7	7,8	0,3	1,7	2,6
Services (% change, Y/Y)	5,5	9,2	7,6	8,2	9,1	3,6	-1,0	12,8	6,4	2,8	5,2	5,4
Industrial production index (% change)	3,01	13,86	9,51	11,92	5,94	-4,18	-4,16	29,68	7,81	0,32	1,67	2,68
Retail sales index (% change as of Q1 of year; current prices)	19,52	19,52	6,71	6,50	3,44	4,57	-8,28	-0,60	-2,10	9,48	-4,28	-1,95
Wholesale trade index (% change; Q1 of year; current prices)	20,00	5,10	17,70	14,30	3,20	26,30	-34,80	37,80	7,20	5,60	-3,90	-0,50
Producer Price Index (% Change)	2,00	5,11	9,65	5,04	0,26	7,52	-13,91	4,74	8,44	0,47	-2,70	-3,29
Export price index (% change)	-3,61	0,22	2,07	2,04	-3,66	1,31	-8,50	1,34	2,43	-1,09	-2,70	-2,36
Import price index (% change)	0,34	1,66	5,16	2,85	-1,85	3,03	-8,01	0,75	4,80	-0,30	-2,80	-2,78
Current account balance (% of GDP, Y/Y)	22,9	18,2	22,1	25,2	26,1	14,6	17,0	23,8	22,8	18,1	17,9	17,5
Current Account (Mil. of USD)	38 620,4	35 140,1	46 824,9	59 079,7	70 806,6	39 639,0	47 503,6	76 754,1	78 983,6	65 416,4	67 283,5	67 807,1
Direct investment (Billion of USD)	-23,22	-19,02	-9,22	-26,79	-10,33	-5,99	11,95	-26,82	-21,22	-48,50	-33,13	-37,21
Portfolio Investment (Billion of USD)	34,80	30,08	1,54	25,72	71,51	-16,38	39,49	40,13	16,17	97,74	78,18	67,61
Other investment (Billion of USD)	12,94	3,40	35,70	22,41	-19,24	50,32	-37,84	15,59	41,62	1,38	18,23	43,33
International (Forex) Reserves (Million of USD)	11 597	20 590	20 815,5	27 076,4	29 352,8	18 363,9	14 675,3	57 670,4	21 240,2	32 662,6	22 493,3	8 850,2
Property prices index (Landed) (% change)	-5,56	5,59	-4,60	6,72	25,99	33,66	-18,77	28,90	17,07	6,69		
Property prices index (Non-Landed) (% change)	-0,13	-0,53	-3,22	7,77	13,00	36,90	-14,39	25,75	21,25	13,77		
Central government debt (as % of GDP)	109,31	102,53	95,26	83,30	77,69	97,11	107,34	102,90	106,36	110,00		
Broad money growth (% change)	8,05	6,24	6,19	19,37	13,41	12,05	11,34	8,59	9,99	7,23	4,32	3,33
Credit/GDP gap (as of 31,12,YEAR; %)	113,1	103,3	98	95,6	92,9	109,1	111,5	104,3	111	120,2	134,2	142,9
Bank nonperforming loans to total gross loans (%)	6,7	5	3,8	2,8	1,5	1,43	2,03	1,41	1,06	1,04	0,87	0,76
Domestic credit provided by financial sector (% of GDP)	79,29	71,44	61,16	61,56	68,60	76,05	86,41	80,75	88,36	95,14	111,76	126,90
SRX Property Index Non-landed (end of Jan; % change)	-5,56	5,59	-4,60	6,72	25,99	33,66	-18,77	28,90	17,07	6,69		
SRX Property Index landed (end of Jan; % change)	-0,13	-0,53	-3,22	7,77	13,00	36,90	-14,39	25,75	21,25	13,77		
Unemployment (% of total labour force)	4,20	3,55	4,13	2,79	2,18	2,24	2,85	2,07	1,87	1,79	1,71	1,69
STI Stock Index (% change (Forecast-Chart.com, 2016)	31,58	17,09	13,61	27,20	16,63	-49,41	64,49	10,09	-17,04	19,68	0,01	6,24
Spread between lending and deposit rates (% p,a,)	4,80	4,90	4,86	4,74	4,80	4,96	5,09	5,17	5,21	5,24	5,24	5,21
Department of Statistics Singapore (SINGSTAT, 2016)	International Monetary Fund (IMF, 2016)							World Bank (Worldbank, 2016)				
Asian Development Bank (ADB, 2016)			Bank for International Settlements (BIS, 2016)					SRX property price index (SRX, 2016)				

3.2. Japan

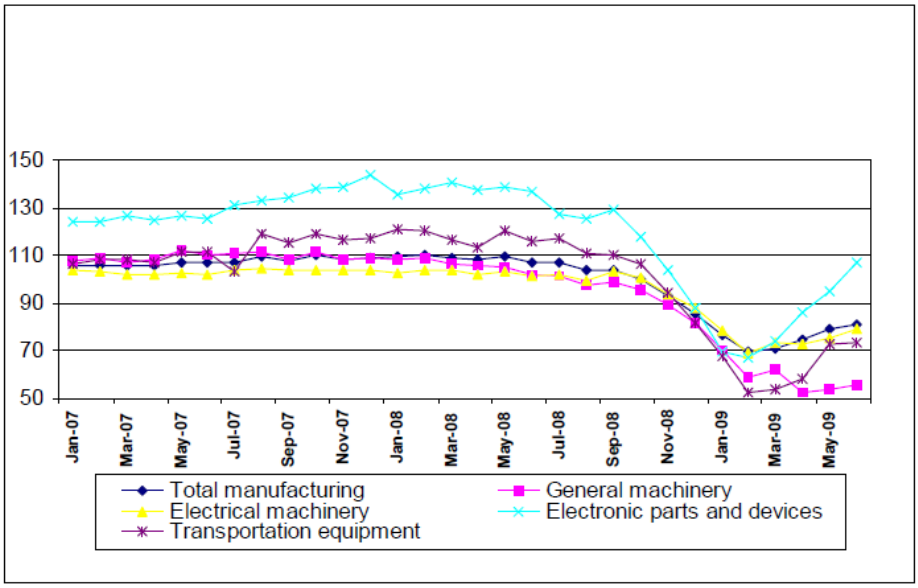
Two years before the 2008 crisis unfolded, Japan started to reap the benefits of its post 1997-crisis reforms and celebrated the end of an almost two decades long recession/stagnation. The Bank of Japan held interest rates at record lows – less than 1%, and the growth of the GDP averaged around 2% during 2003-2007. (Worldbank, 2016) By 2007, inflation started to finally rise, and Japan, as is usual in Asian countries, had a high amount of savings, oscillating around 30% in the 2000s. (e-Stat, 2016) (Worldbank, 2016) However, these savings were gradually falling since the 1990s – the real wages de facto stagnated for two decades due to the fact that Japanese companies were slowly deleveraging their balance sheets. (Koo, 2008) (Garside, 2012) This fact can be confirmed by the steadily increasing ratio of household expenditures to GDP. (ADB, 2016) At the time before the crisis struck, companies' and banks' balance sheets were relatively healthy, while leverage was within the normal levels. The government reforms of the early 2000s accomplished a cleaning of balance sheets along with rule-based western-style financial system oversight. Japan had a huge proportion of short-term debt, around 60% of total debt, while the central government debt oscillated around 180% of GDP throughout the 2000s. (ADB, 2016) (OECD, 2016) No yield discrepancy whatsoever can be observed with regards to Japan in 2007-2008, since the BoJ pursued the lowest yield possible for the yen in history and subsequently the lowest yield of all currencies researched within this paper. Despite the low-interest rate policy by the BoJ, broad money growth was kept at a relatively low level, with printed values around 3% p.a., which indicates rather low drag on issuing new credit. (IMF, 2016)

Graph 26: Dollar/Yen exchange rates (Investing.com, 2016)

Japan was hit by both financial and economic contagion. Since Japanese banks were trading with American and European counterparts directly, they were hit by direct investment losses and consequently a liquidity squeeze and a subsequent credit crunch. For example, as per a report by Reuters, two big Japanese banks had heavy credit exposures in Lehman Brothers.

(Kaiser, 2008) Nevertheless, banks, companies, and consumers were less indebted (leveraged) then during the previous economic downturns in the 1990s, while financial oversight was strengthened to the level similar in the western banking system. The investors' perception of the yen as a safe-haven asset during the worldwide turmoil had a consequence of a skyrocket rise of the yen versus other major currencies like USD or EUR. Even though the yen started to strengthen since 2007, USD/JPY fell from just shy of 111 in August 2008 to 87 in January 2009 and continued to fall to the bottom of 75.50 in September 2011. (Investing.com, 2016) This constitutes a strengthening of almost 21% in 4 months up to January 2009, and all in all the yen was stronger by more than 30% since the last peak.

The volatility of USD/JPY of such proportions was a consequence of quantitative easing by the Fed combined with a low interest rate causing general weakness of USD. A combination with a worsened financial climate due to the European sovereign debt crisis in PIIGS countries in 2009-2011 which threatened to dissolve the European Union only added to the strength of the yen as a safe-haven call. Even though strengthening is the exact opposite of a currency crisis, the strong yen had a detrimental effect on Japanese exports, and the competitiveness of the usual export goods such as car or machine tools fell considerably. As a result of the weakening western demand, the secondary demand for intermediate goods by Asian neighbors, and the appreciating yen, real exports fell by an astonishing 23.44% Y/Y in 2009, manufacturing by 15.52% Y/Y, and the industrial production index by 21.03%, all while real imports grew by 1.43%. The GDP fell by 1.04% and 5.53% Y/Y in 2008 and 2009 respectively. (IMF, 2016) (BoJ, 2016) (ADB, 2016) (Fukao & Tangjun, 2009)



Graph 27: Japanese industrial production index by sectors (Kawai & Takagi, 2009, p. 3)

There was a notable fall in exports of Japan's main exporting articles – high-tech durable goods such as cars and computer hardware. Automobile exports fell by 70% in 2009 and computer D-RAM chips exports fell similarly. (Lipsky, 2009) Interestingly, the NPL to total loans ratio of banks was relatively low at around 2.4% for the whole duration of the crisis, suggesting that the health of economic actors was good. (Worldbank, 2016) NIKKEI225 correlated with plummeting exports and strengthening of the yen – the main stock index fell from a July 2007 high of roughly 18300 to a low of approx. 7000 in October 2008, or almost 62% from the previous high to the bottom. (Investing.com, 2016) Interestingly, the stock market started to fall a year before the actual crisis. Both commercial and residential property indices fell by roughly 15-20% in 2009 Y/Y. (MLITT, 2016)

Graph 28: Japanese NIKKEI225 stock index (Investing.com, 2016)

The result of the slowing exports and the falling GDP was a fall in consumer confidence, higher unemployment, and another fall of general aggregate demand. Notably, the media relayed information about how to cut down household expenditures, further aggravating the demand troubles. (Masters, 2008) Another problem was a consequence of the falling USD – higher prices of oil and other commodities which have to be mostly imported to Japan increased the import price of goods while decreasing companies' profit margins.

Japan was officially in recession since November 2008, when economic data signalized that the economic growth fell in two consecutive quarters. (Masters, 2008) Facing dire consequences of the "imported" crisis, the government and the BoJ decided to take bold steps in order to not replicate the events and mistakes of the 1990s. The government introduced a guarantee on bank deposits and injected capital into the interbank market. On 30

October 2008 the government also announced a stimulus package worth 275 billion USD. (Falcker, 2008) Government expenditures rose from around 16% of GDP, where it oscillated throughout the 2000s, to 19.1% of GDP in 2009, while central government debt skyrocketed from around 180% of GDP throughout the decade to 207% in 2009 and kept increasing up to almost 247% of GDP in 2014. (ADB, 2016)

In October 2010 the BoJ started its new round of quantitative easing focused on an outright purchase of "commercial paper, asset backed CP, corporate bonds, exchange traded funds and Japan real estate investment trusts". (Kuttner, 2014, pp. 6-7) Since March 2013, under the new Haruhiko Kuroda governorship, the BoJ started its expanding policy and increased its outright purchases of assets with a target of 2% inflation, drawing the yen lower against the dollar in the process. The ultimate consequence of this open-ended buying of J-Bonds, commercial papers, and other Japanese assets was the fact that by 2016 the Bank of Japan was one of the largest stakeholder of companies in NIKKEI225, owning up to 60% of Japanese exchange traded funds, creating a tension among the investors about the quality of governance of such companies and the possible liquidity constrains. (Kitanaka, Nakamura, & Hasegawa, 2016)

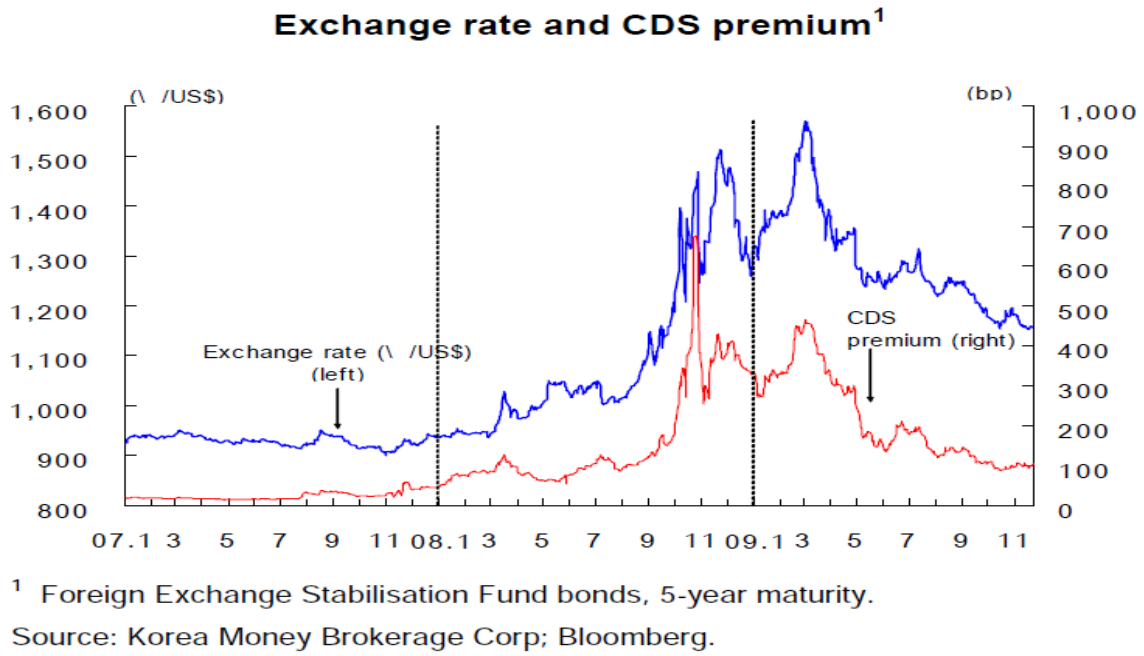
The results of the domestic and foreign stimuli were numerous – exports grew by 10.69% in 2010, industrial production grow by 14.4% Y/Y in 2010, and manufacturing growth rose by 13.18% Y/Y in 2010. However, construction growth remained subdued and a lag in employment caused the fact that among the wider population recovery started to be felt no sooner than 2011. (ADB, 2016) (IMF, 2016) (OECD, 2016) Nonetheless, the problem of subdued aggregate demand will not disappear anytime soon, because the customers got used to living in one crisis after another and they refuse to spend too much in anticipation of a future forthcoming crisis, ultimately shedding effective economic growth off the country. (Falcker, 2008)

Table 8: Japan: Table of economic indicators (2002-2013)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Growth rate of GDP	0,29	1,69	2,36	1,30	1,69	2,19	-1,04	-5,53	4,71	-0,45	1,74	1,36
Gross domestic savings (% of GDP)	23,80	24,05	24,46	23,87	23,94	24,57	23,17	20,03	21,07	19,34	18,93	18,38
Consumer Price Index (% Change)	-1,1	-0,3	0,0	-0,4	0,3	0,1	1,6	-1,5	-0,8	-0,3	0,0	0,5
Private consumption (% change)	1,19	0,50	1,15	1,53	1,10	0,92	-0,93	-0,67	2,77	0,26	2,28	1,67
Government consumption (% change)	2,60	1,88	1,52	0,79	0,03	1,11	-0,13	2,27	1,90	1,23	1,67	1,86
Government Expenditure, total (% of GDP)	17,2	16,8	15,9	16	15,6	14,6	15,9	19,1	18	19,5	19	19,3
Tax revenue (% of GDP)	9,1	8,9	9,4	10,2	10,6	10,2	9	8,4	8,9	9,4	9,8	10,5
Household final consumption expenditures (% of GDP)	57.9	57.6	57.3	57.8	57.9	57.3	58.3	60.1	59.2	60.3	60.6	61.1
Real exports (% change, Y/Y)	-11,01	17,52	13,01	4,29	9,76	7,27	12,53	-23,44	10,69	14,18	-5,17	-7,02
Real imports (% change, Y/Y as of January)	-11,18	11,95	2,37	2,79	5,13	-0,21	0,25	1,43	-9,28	7,01	4,94	-0,15
Manufacturing (Current prices, Y/Y % change)	-3,57	0,67	1,98	1,22	0,57	3,29	-4,73	-15,52	13,18	-7,47	0,76	0,38
Construction (Current prices, Y/Y % change)	-4,92	-2,05	-1,48	-6,99	1,82	-0,55	-4,40	-4,07	-2,79	1,01	1,27	4,17
Industry (as per ADB; Y/Y, % change)	-1.9	2.4	3.7	2.1	3.8	3.5	-0.2	-15.0	14.4	-2.7	0.6	0.9
Industry (as per ADB; % of GDP)	28.7	28.6	28.6	28.1	28.1	28.2	27.5	26.0	27.5	26.1	26.0	26.2
Services (as per ADB; Y/Y, % change)	0.9	1.2	1.7	1.5	1.2	1.6	-1.5	-3.1	1.2	0.6	1.8	1.3
Services (as per ADB; % of GDP)	69.9	70.0	70.1	70.6	70.7	70.6	71.3	72.8	71.3	72.7	72.8	72.6
Agriculture (as per ADB; Y/Y, % change)	6.2	-9.1	-9.9	1.0	-1.7	6.3	7.2	-9.4	-1.0	2.0	0.6	2.7
Agriculture (as per ADB; % of GDP)	1.5	1.4	1.3	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1.2
Producer Price Index (% Change)	-2.1	-0.9	1.3	1.6	2.2	1.8	4.6	-5.3	-0.1	1.5	-0.9	1.3
Export Price Index (% Change)	-1,10	-4,10	-1,32	1,92	3,08	2,22	-6,06	-10,51	-2,47	-2,17	-2,07	11,63
Import Price Index (% Change)	-1,43	-0,89	4,18	13,12	13,91	7,53	8,60	-25,38	7,12	7,48	-0,24	14,47
Current Account Balance (% of GDP)	2.7	3.2	3.9	3.7	4.0	4.9	3.0	2.9	4.0	2.2	1.0	0.8
Direct investment (Billion of USD)	19,40	25,57	33,08	46,91	60,35	51,13	86,34	61,23	71,21	116,66	117,30	140,59
Portfolio Investment (Billion of USD)	104,86	98,96	-21,63	9,71	-127,22	-70,07	272,73	213,19	144,70	-169,47	30,62	-272,20
Other investments (Billion of USD)	-61,56	-186,94	-19,91	62,11	175,33	209,22	-185,82	-124,26	-0,10	55,15	-64,53	25,70
International (Forex) Reserves (Billion of USD)	469,618	673,554	844,667	846,896	895,321	973,297	1 030,763	1 048,991	1 096,069	1 295,839	1 268,086	1 266,851
Central government debt (% of GDP)	161,8	172,3	178,8	180,2	180	180	184,2	207,3	210,5	226,3	235,3	239,8
Long-term debt, total (% of total debt))		30.9	32.1	33.1	38.5	40.5	36.5	34.6	30.2	27.0	25.6	22.9
Short-term debt, total (% of total debt)		69.1	67.9	66.9	61.5	59.5	63.5	65.4	69.8	73.0	74.4	77.1
M2 Money Supply Average (% Change)	3,31	2,15	0,93	1,81	1,01	1,57	2,09	2,71	2,77	2,74	2,50	3,61
M3 Money Supply Average (% Change)	0,88	-0,19	0,83	0,38	-0,42	0,77	0,76	2,00	1,93	2,60	2,24	3,40
Credit/GDP gap (End of Dec; %)	187,5	179,6	171,9	169	168,6	165,2	166,5	176	170,9	171,6	168,2	168,8
Bank nonperforming loans to total gross loans (%)	7,20	5,20	2,90	1,80	1,80	1,50	2,40	2,40	2,45	2,43	2,43	2,34
Domestic credit provided by banks to GDP ratio (%)	303,04	312,13	308,57	320,32	312,77	300,98	307,06	333,18	331,97	342,81	351,76	367,68
Japan residential property index (as of Apr; % Y/Y)								-9,42	1,47	0,84	-1,57	1,91
Japan commercial property index (as of Q2; % Y/Y)								-14,22	-3,44	-0,30	0,30	6,05
NIKKEI 225 (End of) % Change	-18,63	24,45	7,61	40,24	6,92	-11,13	-42,12	19,04	-3,01	-17,34	22,94	56,72
Unemployment (%)	5,40	5,30	4,70	4,40	4,13	3,90	3,99	5,05	5,10	4,58	4,30	4,05
Spread between lending and deposit rates (% p,a,)	1,83	1,78	1,69	1,41	0,98	1,08	1,32	1,29	1,10	1,04	0,93	0,76
Bank of Japan (BoJ, 2016)	International Monetary Fund (IMF, 2016)				World Bank (Worldbank, 2016)			Bank for International Settlements (BIS, 2016)				
Portal Site of official statistics of Japan (e-STAT, 2016)	OECD (OECD, 2016)				MLITT (MLITT, 2016)			NIKKEI 225 Index (NIKKEI225, 2016)			ADB (ADB, 2016)	

3.3. South Korea

After the double-dip recession in 2001, Korea was enjoying a very modest economic growth, all within borders of sustainability. Chaebols were already reformed and split-up, spreads of loans fell, gross domestic savings stood at around 33%, while export growth, industrial production, and manufacturing steadily rose. (ADB, 2016)(ECOS, 2016)(Worldbank, 2016) From 2000 to 2007 Korea had among the highest interest rates (Fed Funds and Thai rates being higher) and because of this yield discrepancy it received high amounts of capital inflows from, among others, the EU and Japan. (BoK, 2016) (FED, 2016) The BoK responded to the appreciation of the currency due to inflows by direct won-selling interventions on FOREX markets, which together with very modest financial and current account surpluses led to a hoarding of foreign currency reserves. (Chung & Kim, 2013) Credit growth was stable at around 14% for a few years before 2008. (Worldbank, 2016) Banks' and corporations' balance sheets were healthy thanks to reforms from the early 2000s, enhancing the ratio of liquidity requirements and banks' FOREX position ceilings together with maximum leverage. (Lall & Karasulu, 2011) Nevertheless, Korea's banks were still reliant on short-term financing as was the case a decade before, the short-term debt to total debt oscillated about 40-50%, and the gross external debt to GDP ratio stood at around 30% before the crisis in 2008. (ADB, 2016) (Dowling & Rana, 2010) Interestingly, mortgages or their equivalents (usually issued by non-banking institutions) were rather short-term (10-15 years), interests were high, and the requirement of a high amount of cash (typically +51% off the value of asset) discouraged the general public from buying homes, thus preventing the creation of a new housing bubble, while the leverage of Korean companies was "as low as 115%", much lower than a decade befaore. (Szikla, 2014) (Chekan, 2011, p. 104) These findings are confirmed by a rather modest growth of the property prices index and are a proof of the fact that the central bank with its loose policy was not the culprit in the crisis. (BIS, 2016)

Nevertheless, Korea suffered quite intense damage since the contagion spilled over to the region. One of main problems was export – Korea is highly dependent on exports of goods and services both to the Asian region (especially China), but also to the troubled western nations – the USA and the European Union. Despite the previous lessons from the 1997 crisis and the acknowledgment of the fact that "shortage of international liquidity was the direct cause of the chaos that broke out", Korea continued in its efforts to liberalize the capital account. Such an action led to extreme outflows of capital, which combined with fears about the borrowing conditions of the local banks led to subsequent intense depreciation of the won. (Chung H. C., 2010, p. 257) KRW/USD currency pair soared from the October 2007 bottom of about 900 won per USD, peaking at just a little less than 1600 won per USD in March 2009, meaning the won depreciated by about 78% in 17 months. (Investing.com, 2016) The won fell even more against the yen – approx. 118% from the bottom of around 7.5 JPY/KRW in June 2007 to roughly 16.4175 yen per won. (Investing.com, 2016) The exchange rate later stabilized at around 1100-1150 KRW/USD. The premium on credit default swaps[5] soared by 581% from late August 2008, marking almost 7% p.a. in late October 2009. 7% p.a. is perceived as a threshold above which the state would be unable to service its debt, given



Graph 29: Korean won vs USD + CDS premium (Chung, 2010, p. 263)

that such a situation lasts for a longer period of time. (Chung H. C., 2010, p. 257) The credit crunch led to an almost complete freeze of new loan creation for small and medium

[5] CDS is a financial derivative used as an insurance against default

enterprises, which fell by 80% in 2009 compared to the year before. (Chung H. C., 201, p. 257) Overall, credit growth fell from an average of roughly 14% in the three years before the crisis, to a low of 3.97% and 3.53% in 2009 and 2010 respectively. (Worldbank, 2016) Service sector growth fell from 5.2% in 2007 to 3.2% in 2008 and to 1.5% in 2009. A similar situation occurred in industrial sector growth, which printed 7.1% in 2007, fell to +2.7% in 2008, and almost stagnated in 2009 with a 0.2% growth. (ADB, 2016) Unemployment increased by 0.4% Y/Y in 2008 to 3.6%, increasing somewhat even in 2009 to 3.7%. (IMF, 2016)

Graph 30: Korean KOSPI stock index (Investing.com, 2016)

In the meantime, stocks plummeted due to a fall in exports from +12.7% in 2007 to +7.5% in 2008 and to -0.3% in 2009. (ADB, 2016) KOSPI printed an all time high of about 2090 points in November 2007 and fell to a bottom of roughly 900 points in October 2008, marking approximately 57% fall in 11 months. (Investing.com, 2016) Property prices did not move too much and rebounded in Q2 of 2009. (Chung H. C., 2010) However, the stock index rebounded spectacularly during the following year, printing all times highs of 2200 points. Interestingly, the total amount of shares owned by foreigners was up from 25.7% on 14 April 2009 to 30.5% in late November 2009. (Chung H. C., 2010, p. 262) Such a V-shaped recovery was supported not only by the fall of the won and more competitive and higher exports to China and Asia in general, but mainly thanks to the combined effort of the BoK and the government which saved the country from a hard landing and economic malaise.

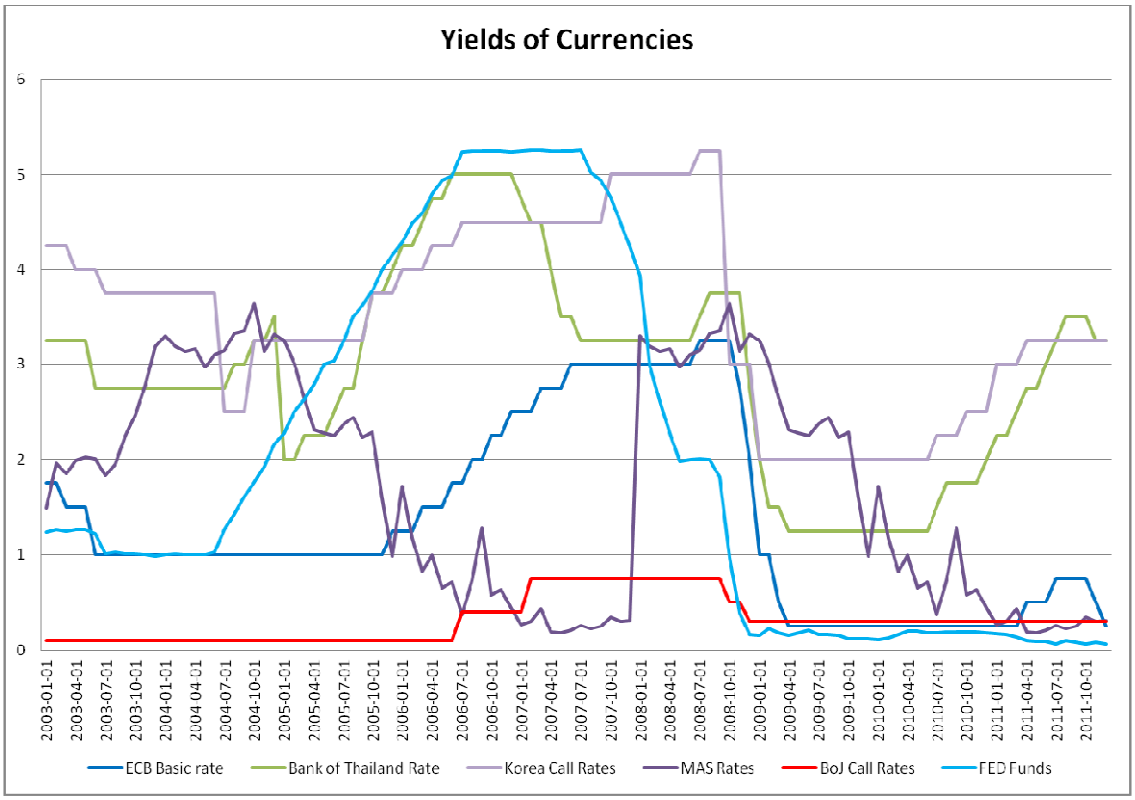
The Bank of Korea and the government reacted swiftly and decisively. The BoK quickly lowered call interest rates to and expanded its liquidity supply in order to unfreeze interbank markets battered by credit crunch and liquidity tightness. The central bank also made an agreement regarding bilateral swap operations of foreign currencies with the Fed and

China's PBC, with the goal of having stable and reliable access to foreign currencies. (Chung H. C., 2010) The BoK and the government also introduced stimulus programs worth 10 billion USD at the end of 2008 and 100 billion USD in early 2009. Such a huge stimulus actually accounted for 5.6% of the GDP. 55 billion USD of FOREX reserves was used for banks requiring access to foreign currency, 40 trillion won was used for the recapitalization of banks, and 40 trillion won was used in a program aimed at buying failed assets. (Dowling & Rana, 2010, p. 168) Thanks to the reforms of chaebols, banks, the capital account, and the hoarding of reserves there was absolutely no need whatsoever to call the IMF for help.

The recovery from the crisis and the stabilization of the labor market were swift, and they were positive as of Q2 2009 and early 2010 respectively. Capital flows reversed and flew back to Korea in search of higher potential yield, although the growth of credit was less than stellar – oscillating between 3.5% - 8.26%, well below the double-digit growth of earlier days. The problem originated in the insufficient demand of both consumers and small and medium enterprises. (Lall & Karasulu, 2011) The government enacted reforms of the banking system, such as the requirement of the loan/deposit ratio to be below 100%, all in order to suppress the reliance of banks on foreign finances and to eliminate possible maturity mismatches of the short-term financing of debts. (Lall & Karasulu, 2011) As the recovery was successful, Korea had to face other challenges in the following years, such as rising inflation, which was caused by the combination of the depreciation of the won, a high domestic demand, and an increase in the price of commodities in the global markets – a backlash of the deteriorating value of the dollar index.

Table 9: South Korea: Table of Economic Indicators (2003-2014)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Growth rate of GDP (% change Y/Y)	2,9	4,9	3,9	5,2	5,5	2,8	0,7	6,5	3,7	2,3	2,9	3,3
Gross domestic savings (% of GDP)	34,03	35,95	34,60	33,48	33,71	33,01	33,15	35,21	34,45	33,80	34,08	34,53
Consumer Price Index (% Change)	3,5	3,6	2,8	2,2	2,5	4,7	2,8	3,0	4,0	2,2	1,3	1,3
Private consumption (% change)	-0.5	0.3	4.4	4.6	5.1	1.4	0.2	4.4	2.9	1.9	1.9	1.8
Government consumption (% change)	3.8	4.5	4.5	7.4	6.1	5.1	5.2	3.8	2.2	3.4	3.3	2.8
Government expenditure, total (% of GDP)	20.6	19.6	20.1	20.7	19.4	21.1	22.1	19.8	20.2	20.8	21.1	21.0
Tax revenue (% of GDP)	14.1	13.4	13.9	14.3	15.5	15.1	14.3	14.0	14.4	14.7	14.1	13.8
Household final consumption expenditures (% of GDP)	53.6	51.4	52.2	52.8	52.4	52.4	51.7	50.3	51.0	51.4	50.9	50.4
Household consumption (% change in national currency)	2,77	3,48	6,71	6,19	7,16	5,97	2,73	7,03	6,66	4,19	2,85	2,80
Imports (% change)	17,55	25,52	16,38	18,43	15,34	21,98	-25,77	31,61	23,33	-0,92	-0,77	1,93
Exports (% change)	19,29	30,97	12,04	14,43	14,14	13,60	-13,86	28,29	19,05	-1,32	2,15	2,33
Agriculture (% change)	-5.3	9.0	1.4	1.6	4.1	5.6	3.2	-4.3	-2.0	-0.9	3.1	2.6
Industry (% change)	5.5	7.8	4.7	6.3	7.1	2.7	0.2	10.4	4.5	1.9	3.3	3.5
Services (% change)	2.2	2.7	3.8	4.6	5.2	3.2	1.5	4.4	3.1	2.8	2.9	3.2
Manufacturing (Current prices, Y/Y % change)	4,86	16,42	4,16	3,24	9,63	7,27	5,30	17,24	7,89	2,24	4,03	1,62
Construction (Current prices, Y/Y % change)	19,42	5,10	2,17	3,00	5,80	-0,65	3,46	-1,64	-0,08	2,34	7,16	4,21
Producer Price Index (% Change)	2,2	6,1	2,1	0,9	1,4	8,5	-0,2	3,8	6,7	0,7	-1,6	-0,5
Export Price Index (% Change)	3,5	3,6	2,8	2,2	2,5	4,7	2,8	3,0	4,0	2,2	1,3	1,3
Import Price Index (% Change)	3,1	2,9	2,3	1,8	2,3	4,3	3,6	1,8	3,2	1,6	1,6	2,0
Current Account Balance (% of GDP)	1,7	3,9	1,4	0,4	1,1	0,3	3,7	2,6	1,6	4,2	6,2	6,3
Direct investment (Mil of USD)	-1991.2	-6098.8	-5313.2	3607.4	13247.4	8445.1	8414.0	18782.5	19931.7	21136.2	15593.2	20659.5
Portfolio Investment (Mil of USD)	-17287.4	-6599.0	3518.1	23385.7	27078.0	2421.4	-49469.4	-42364.7	-13142.7	-6747.8	9344.5	33605.3
Other investment (Mil of USD)	10646.2	10339.9	2549.9	-36076.1	-32515.1	24618.5	-1820.0	20630.5	2542.7	26637.3	43281.1	21937.9
International (Forex) Reserves (Billion of USD)	155,352	199,066	210,391	238,956	262,224	201,223	269,995	291,571	306,402	326,968	346,460	363,593
Property prices Index (Q1 Value)	76,81	80,62	79,19	83	92,97	95,43	96,89	99,51	102,32	108,24	107,74	108,63
Property prices index (Q1 Y/Y % change)	11,33	4,96	-1,77	4,81	12,01	2,65	1,53	2,70	2,82	5,79	-0,46	0,83
Housing Purchache Price Index (All cities)(% Change)	13,4	5,4	-1,9	4,5	12,3	2,5	2,2	2,2	2,2	6,5	-0,2	0,5
General government debt (as % of GDP) (FRED, 2016)	20,45	23,25	26,96	29,27	28,65	31,38	30,83	31,51	32,13	33,76	35,88	37,90
Long-term debt, total (% of external debt)	65.4	63.3	58.7	48.4	51.0	52.9	56.9	61.7	65.1	68.7	73.6	72.9
Short-term debt, total (% of external debt)	34.6	36.7	41.3	51.6	49.0	47.1	43.1	38.3	34.9	31.3	26.4	27.1
Delinquency ratios of loans of enterprises (All Banks; %)	1,9	1,8	1,3	1,0	0,9	1,5	1,0	1,1	1,1	1,2	1,1	0,9
Delinquency ratios of loans of households (All banks; %)	1,8	1,7	1,1	0,7	0,6	0,6	0,5	0,6	0,7	0,8	0,7	0,5
M2 Money Supply Average (% Change)	7,9	4,6	6,9	8,3	11,2	14,3	10,3	8,7	4,2	5,2	4,8	6,6
Credit/GDP gap (End of Dec; %)	148,7	142,2	141,3	150,2	159	171,8	181,2	177,8	180,3	184	186,1	188,3
Bank nonperforming loans to total gross loans (%)	2,60	1,90	1,20	0,80	0,70	0,57	0,58	0,59	0,48	0,59	0,57	0,62
Domestic credit provided by banks to GDP ratio	114,74	109,78	114,82	127,22	134,88	148,34	144,53	135,93	138,13	136,69	134,91	138,36
Unemployment (% change Y/Y)	3,60	3,70	3,70	3,50	3,20	3,20	3,60	3,70	3,40	3,20	3,10	3,50
Spread between lending and deposit rates (% p.a.)	1,99	2,03	1,87	1,48	1,38	1,30	2,17	1,65	1,61	1,70	1,75	1,73
Bank of Korea (BoK, 2016)	IMF (IMF, 2016)			World Bank (Worldbank, 2016)			BIS (BIS, 2016)		ADB (ADB, 2016)			

3.4. Thailand



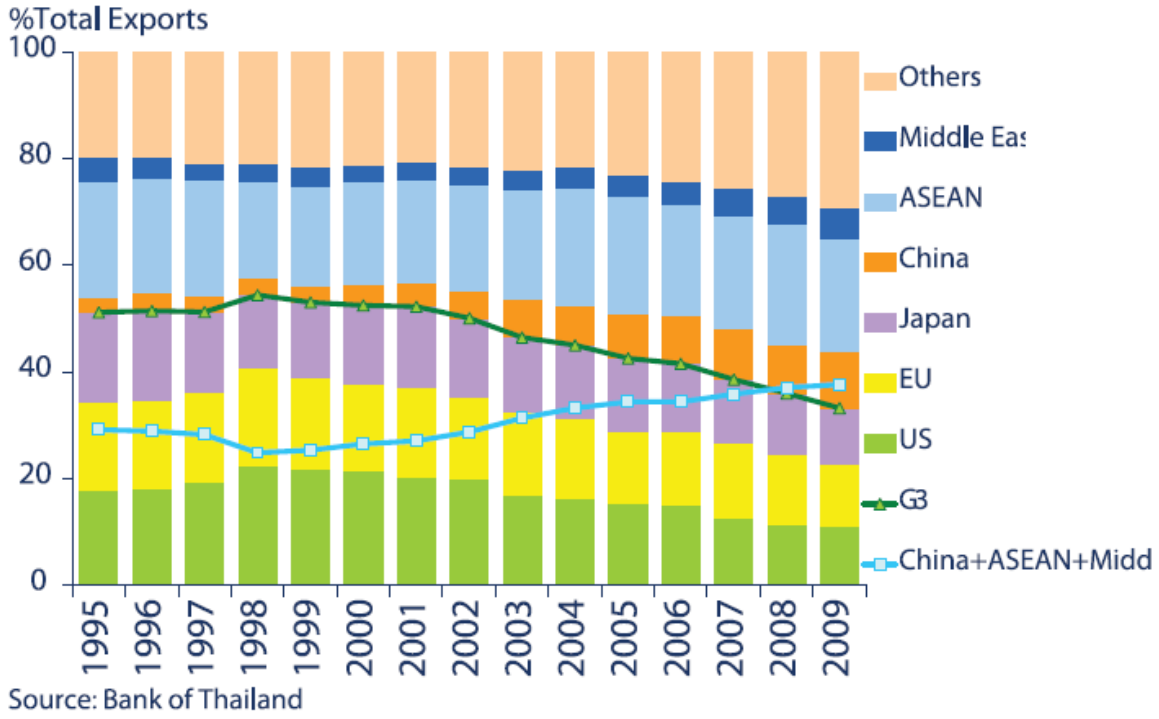
Graph 31: Yields of currencies (% p.a.) (BoT, 2016) (BoK, 2016) (MAS, 2016) (FED, 2016) (BoJ, 2016) (ECB, 2016)

Thailand enjoyed quite a considerable growth after undergoing successful but painful reforms after the 1997 Asian crisis. The Bank of Thailand held the interest rate relatively high in comparison with its peers in SEA, namely around 3-5% p.a. in the period from 2003 to early 2007. (BoT, 2016) Thus, there was no local central bank induced unsustainable credit growth. Broad money growth actually stood at around 8% on average in the years before the crisis, while non-performing bank loans were kept lower than 9% before the crisis. (Worldbank, 2016) Yield discrepancy was not that extreme, since Fed funds were usually offering higher yields than the SEA currencies. (FED, 2016) Notably, the short-term debt to total external debt ratio was oscillating around 40% before the crisis, although foreign exchange reserves increased considerably and the short-term debt stayed at around 30% of total reserves in the few years before the crisis struck. (Worldbank, 2016) No notable increase in capital flows to the country could be observed before the crisis. Regarding the banking sector before the 2007 turmoil, there were some notable similarities and stark differences when compared to the 1997 situation. Several big banks were still dominant credit issuers, competitiveness was still the lowest in comparison with other Asian countries (Sheng A. ,

2009), but there was higher participation of foreign investors in the banks' shares. Interestingly, despite the increase of the number of foreigners owning bank shares, the country itself became a significant force on the domestic bank market by owning 2 banks directly, while majority foreign ownership could be found in only 10% of banks. (BoT, 2010) It is interesting mainly due to the well-known reluctance of the domestic banks to hand over shares during the 1997 crisis. Foreign banking entities were specialized in issuing credit to multinational conglomerates and providing a market for financial derivates (usually simple plain-vanilla), such as FOREX swaps or credit default swaps. (BoT, 2010, p. 377) The domestic financial market changed – assets of deposit commercial banks fell to approx. 94% of GDP in 2007, down by 49% of GDP in comparison with the year 1996 despite growing in absolute terms. This money found its way to different parts of the capital market, such as equities or bonds. (Lai, 2012, pp. 148-150)

Thailand also had very sound economic fundamentals. Tourists poured in, exports grew too, retail sales had double-digit increases in 2003-2004 and kept growing healthily until 2007. (BoT, 2016) Moreover, regulation and oversight evolved to a completely different level in comparison with the situation a decade before. Banks were well-capitalized and had a relatively low exposure to troubled western banks or toxic assets, keeping the primary banking sector very healthy. As a consequence of the lessons learned 10 years previously, banks had very small needs of foreign funding, which actually stood at around "3.5% of total liabilities". (BoT, 2010, p. 377) In the meantime, both the financial sector and the commercial sector were not overleveraged too much – actually, the debt-to-equity ratio was about 70% on average in 2007, down by 50% since 1997. (Nijathaworn, 2012) Moreover, at the beginning of the decade, the banks started to check the background of their clients prudently, and steps were taken to provide a sustainable housing environment, so there were no signs whatsoever of the fact that Thailand's housing sector would be in a bubble before 2007 – the average growth of land assets was about 4% on average, while the price growth of single-detached houses was about 2.5%. (Kritayanavaj, 2009)(BoK, 2016)

Nevertheless, with all the reforms that Thailand had been through, one crucial vulnerability arose – the country became heavily dependent on exports: while in 1997 export dependency stood at 46.5% of GDP, a decade and a year later dependency rose to 72.9% of GDP, while almost half of exports in the period 1995-2007 was bound to Japan, the EU, and the USA, also known as G3 countries. (Chirathivat & Mallikamas, 2010, p. 4) (Pongpattananon & Tansuwanarat, 2011, p. 350)



Graph 32: Thailand: Exports by countries (Pongpattananon & Tansuwanarat, 2011, p. 350)

This vulnerability became crucial as soon as the crisis spilled over from the financial sector in the USA to the real economy of the whole world. It is notable that since Thai banks had very good fundamentals, a low leverage ratio, and were not dependent on foreign or short-term capital, the financial contagion did not overwhelmingly interfere with their daily affairs, certainly not of the scale of the 1997 crisis when a complete financial meltdown occurred. It is possible that given the structural changes of the banking system and the creation of a mainly commercial-based banking system with a reliance on domestic deposits, the banking sector became insulated from the turmoil outside Thailand. (Nijathaworn, 2012) There were capital outflows because of foreign bank branches sending liquidity to their squeezed parents in the Western countries, combined with a lack of USD liquidity in the interbank market, lowered credit availability, and a general flight to safety due to the global financial turmoil. Moreover, since the uncertainty in the global financial markets credit default swaps spreads, indicating insurance costs of possible sovereign default, widened for a while. Nevertheless, "given the structural liquidity surplus in the Thai financial system, there were no difficulties in raising funds in the uncollateralized market." (BoT, 2010, p. 380) Thus no significant contagion via financial linkages and a liquidity squeeze occurred in the Thai banking system – the crisis, despite its severity outside Thailand, hit mainly the export and tourism sectors. Banks and companies were left more or less unscathed – at the height of the

turmoil in Q3 2008 the amount of NPLs stood at 3.3%, significantly lower than during the 1990s crisis. (Dowling & Rana, 2010, p. 178)

Economic contagion spilled over to the Thai economy exactly at the time when there was a political crisis in Thailand. This political uncertainty resulting in protests and a subsequent closure of the main Bangkok airport, combined with the economic crisis around Thailand and epidemical outbursts of the swine influenza type H1N1, severely hit Thailand's tourism, its main contributor to the sector of services. (Chirathivat & Mallikamas, 2010) Service sector growth fell from around 5% p.a. Y/Y before 2007 to 1% and 0.1% in 2008 and 2009 respectively. (ADB, 2016)

Since Thailand became a major hub for both production and intermediate goods completion in the automobile industry, its exports were focused on durable goods and electronics. (Crispin, 2009) As the demand of the industrialized G3 countries fell, so did Thai exports, and the final figure of export growth in 2009 printed the value of -13,9% Y/Y. (BoT, 2016) Imports to Thailand also fell, namely by 25,1% Y/Y in 2009, and the fall mainly affected energy, commodities, and capital goods. (BoT, 2016) (Chomthongdi, 2009) SET stock index fell well over 50% (55.71%) since October 2007, only to find the bottom in November 2008 and rebound sharply. The property prices fell decently in 2008-2009, just shy of 2%, while the land price level actually grew during both 2008 and 2009. (SET, 2016) (BoT, 2016) The growth of the gross domestic product fell mildly by -0.7% in 2009, mainly thanks to the concerted response of the government and the Bank of Thailand. (BoT, 2016)

The response of policy officials was rather bold. Stark images of bank runs from a decade before prompted the government in October 2008 to enact blank guarantees on all deposits in bank and non-bank financial institutions. (BoT, 2010, p. 385) Moreover, the government introduced two stimulus packages, which included, among others, lowered taxes, cut energy prices, checks to the poorest, a 1.43 trillion baht public investment, credit guarantees for small and medium enterprises, expansion of airports to serve tourists, 400 billion baht dedicated to new loans and other policies focused on new credit creation. (Haughton & Khandker, 2012, p. 27)(BoT, 2010, p. 385) (Dowling & Rana, 2010) All in all, the fiscal stimulus enacted in 2009 and worth 39 billion USD (14.3% of GDP) was huge enough to restart the economy. (Dowling & Rana, 2010, p. 178)

Since the banking sector was in a good shape, the BoT did not inject any new baht liquidity to the banking system. (BoT, 2010) The central bank nonetheless lowered the basic

interest rate, altogether by 2.5%, despite the possible risk of greater capital outflows. In case of emergency, the BoT created bilateral swap agreements with the BoK, the BoJ, and the PRC to be able to directly exchange baht for won, yen, and yuan respectively. (BoT, 2010, p. 384)

Unemployment troubles were different than a decade before. As per the research by Haughton & Khandker (2012), the poorest people were not exactly the worst off (they received a substantial amount of help from the government's fiscal stimulus programs); the real "losers" of the 2008 recession in Thailand were "young adults, especially those residing in Bankgkok, and with a vocational education. … This is consistent with the observation that export-led manufacturing, which is concentrated around Bangkok, contracted sharply for several months." (Haughton & Khandker, 2012, p. 26) Despite all efforts of the government, Thailand together with Korea experienced a prolonged situation during which the fall of unemployment lagged behind GDP growth. (Palit, 2011) Nevertheless, there was no need to ask the IMF or other institutions for help in 2008-9 because the recession was relatively mild, and Thailand was out of recession by 2010.

Table 10: Thailand - Table of Economic Indicators (2003-2014)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Growth rate of GDP (% change Y/Y)	7,2	6,3	4,2	5,0	5,4	1,7	-0,7	7,5	0,8	7,2	2,7	0,8
Gross Saving Ratio (% of GDP)	18,2	21,6	15,2	17	18,2	15,9	-13,9	27,1	14,3	3	-0,1	-0,3
Headline Consumer Price Index (% Change)	1,80	2,70	4,50	4,70	2,30	5,50	-0,90	3,30	3,81	3,02	2,18	1,89
Private consumption (% change)	7,30	7,4	4,2	2,8	1,2	2,8	-1,3	5,0	1,8	6,3	0,8	0,6
Government consumption (% change)	5.1	3.9	8.0	2.3	8.6	4.9	10.3	9.3	3.4	7.5	4.7	1.7
Government expenditure, total (% of GDP)	16.5	17.2	17.2	17.3	17.7	17.6	19.4	19.7	19.4	19.4	20.2	19.9
Tax revenue (% of GDP)	14.2	14.7	15.2	15.2	14.6	15.0	13.7	14.6	15.9	15.1	16.5	15.3
Household final consumption expenditures (% of GDP)	55.6	55.9	55.8	54.5	52.5	53.6	53.1	52.1	52.9	52.8	52.0	52.3
Household consumption (% change in national currency)	8,61	8,83	9,66	8,29	4,06	9,67	-0,09	8,74	5,68	13,89	3,38	2,47
Exports (% change)	18,2	21,6	15,2	17	18,2	15,9	-13,9	27,1	14,3	3	-0,1	-0,3
Imports (% change)	17,4	10,7	25,9	7,8	9,1	26,7	-25,1	37	24,9	8,4	-0,1	-7,9
Exports of goods and services (% of GDP)	61,50	66,00	68,40	68,70	68,90	71,40	64.1	66.1	70.3	69.3	67.7	69.2
Imports of goods and services (% of GDP)	55,20	61,40	69,50	65,40	61,00	69,00	54.8	60.6	68.6	68.6	65.1	62.6
Manufacturing (Current prices, Y/Y % change)	13,53	9,45	10,20	12,34	9,51	6,82	-4,05	17,41	-1,91	5,59	2,87	1,85
Construction (Current prices, Y/Y % change)	5,34	12,19	15,08	8,16	7,42	1,33	1,65	11,61	1,25	10,37	2,25	-2,95
Industry (as per ADB; Y/Y, % change)	9.0	7.2	5.3	5.3	6.6	2.3	-1.9	10.4	-4.1	7.3	1.4	-0.7
Industry (as per ADB; % of GDP)	38.1	38.0	38.6	39.3	39.5	39.6	38.7	40.0	38.1	37.5	37.0	36.8
Services (as per ADB; Y/Y, % change)	5.2	7.0	4.1	4.9	5.2	1.0	0.1	6.8	3.7	8.2	4.4	2.1
Services (as per ADB; % of GDP)	52.5	52.7	52.2	51.3	51.1	50.3	51.5	49.4	50.3	51.0	51.7	52.7
Agriculture (as per ADB; Y/Y, % change)	11.9	-1.1	-0.1	3.9	1.9	2.9	-0.2	-0.5	6.3	3.4	0.4	0.3
Agriculture (as per ADB; % of GDP)	9.4	9.3	9.2	9.4	9.4	10.1	9.8	10.5	11.6	11.6	11.3	10.5
Producer Price Index (% Change)	4,01	6,72	9,13	7,08	3,23	12,41	-3,79	9,41	5,50	1,04	0,28	0,09
Export Price Index (% Change)	5,82	6,22	7,21	5,29	5,70	10,45	0,35	9,12	5,59	0,61	-0,45	-0,98
Import Price Index (% Change)	3,45	4,36	6,28	6,48	5,35	12,63	-2,56	8,08	10,08	1,60	-2,09	-1,80
Current Account Balance (% of GDP)	5,00	1,7	-4,3	1,1	6,3	0,8	8,3	3,8	2,6	-0,4	-1,2	3,8
Direct investment (Mil of USD)	4614,00	5786	7545	8487	8313	4446	879	1010				
Portfolio Investment (Mil of USD)	-73,00	3071	5510	4232	-6727	-2080	-5905	10234				
Other investment (Mil of USD)	-9300,00	-5229	-5913	-4556	-3315	9826	2249	5956				
International (Forex) Reserves (Billion of USD)	42,10	49,8	52,1	67,0	87,5	111,0	138,4	172,1	175,1	181,6	167,2	157,1
Currency Swap Obligations	-5,20	-4,6	-3,8	-6,9	-19,1	-7,0	-15,7	-19,6	-31,2	-24,1	-23,0	-23,1
Single-detached house incl. Land price (% change)	3,00	5,40	8,0	3,7	1,1	-1,1	-1,6	0,3				
Land price(% change)	1,20	1,50	6,3	4,1	4,6	6,5	2,1	1,3				
Central government debt (as % of GDP)	27,05	24,40	25,46	24,38	22,99	22,45	26,79	26,92	28,15	28,46	29,25	
% of Short-term/Total external debt	18,74	19,67	27,39	28,52	29,16	30,72	41,20	47,64	43,02	43,35	45,08	41,70
Short-term debt (% of exports)	14,89	12,91	11,84	13,66	13,52	11,74	10,94	15,60	27,41	20,47	21,74	21,87
Short-term debt (% of total reserves)	25,99	23,05	30,75	26,58	20,92	18,43	24,05	29,45	27,04	32,06	37,01	36,03
Total Reserves (% of Total External Debt)	72,13	85,33	89,07	107,29	139,42	166,72	171,34	161,80	159,12	135,21	121,78	115,73
Broad money growth (% change)	14,71	5,57	6,09	8,16	6,25	9,16	6,76	10,94	15,12	10,37	7,32	4,65
Credit/GDP gap (End of December; % change)	103,70	104,2	97,8	93,8	90,5	90,7	95,7	92,1	100,9	110,2	113,3	118,3
Bank nonperforming loans to total gross loans (%)	13,50	11,9	9,1	8,1	7,9	5,7	5,22	3,89	2,93	2,43	2,30	2,31
Interest rate spread (lending - deposit rate)(% p.a.)	4,60	4,50	3,92	2,92	4,18	4,56	4,92	4,92	4,64	4,30	4,08	4,81
Domestic credit provided by financial sector (% of GDP)	122,47	116,21	111,02	101,75	123,59	122,09	128,32	133,46	148,27	155,94	159,91	168,76
Unemployment (%)	2,20	2,10	1,80	1,50	1,40	1,40	1,50	1,00	0,70	0,70	0,70	0,80
Bank of Thailand (BoT, 2016)						World bank (Worldbank, 2016)				International Monetary Fund (IMF, 2016)		
Asian Development Bank (ADB, 2016)						Bank for International Settlements (BIS, 2016)						

3.5. Summary of the Great Recession

The reader can see that there is a striking resemblance between the 1997 Asian crisis and the 2007 sub-prime crisis in the USA, where seemingly the whole pattern of the crisis repeated itself although with much greater, world-wide consequences. Nevertheless, from the point of view of this research thesis, these crises had different causes and different outcomes for the region of East and Southeast Asia.

The crisis of 2007, as was manifested in Asian countries, was not a financial one, even though some financial problems occurred, but mainly an economic one. It is certain that Asian countries did not have to go through a complete financial meltdown and a subsequent spill-over to the real economy as was the case a decade ago. Asian countries were not the troubled ones but given the magnitude of the global financial turmoil they felt the crisis via trading and financial linkages they had with western countries. There were certainly heavy inflows of capital to Asian countries but because they learned their lesson in 1997 the countries were able to manage them of the financial system would not break as soon as outflows gathered pace. Asia's exposure to the crisis was mainly trade-linked due to intertwined supply chains in Asia and subsequent troubles when exports to western markets fell.

Korea and Thailand, previously the main "losers" of the 1997 crisis, were relatively unscathed financially, thanks both to massive reserves accumulated since the 1997 crisis and a relatively low exposure to the sophisticated financial derivate business of the western world, although Korea specifically had encountered some troubles with short-term financing. Their main problem was the fall in exports to developed nations, which was subsequently subsidized by China's great revival, financed by massive stimulus programs and creating a debt bubble of enormous proportions. Singapore was hit badly due to bad investments and a high exposure in western banks, thus, along with a fall in high-added-value exports like computer hardware, it was hit by both financial and trade linkages and consequently experienced its worst recession in more than 40 years. (Jordan, 2009) Japan was hit both by financial and trade linkages, since Japanese banks were heavily involved in trading with the US and Western Europe, while at the same time exporters became victims of both the falling demand of their main consumers and the loss of competitiveness due to a higher value of the yen.

Thus, those countries which were heavily oriented to the West, both financially and via trade linkages, suffered the most. However, the countries which underwent reforms after the crisis in 1997 were harmed mildly, and their recovery was swift. With the exception of Japan, all other countries within this study experienced a renewed growth since late 2009. Nevertheless, the tapering of the Fed's Quantitative Easing 3 program since 2014 and the mere *possibility* of a hiking of the Fed's interest rates created turmoil in Asia, and economies have been experiencing a rather discrete growth bordering on recession at least since 2014, partly due to the slowdown of China's growth and the surge in the value of the dollar, resulting in plummeting commodity prices and intensive capital outflows, ravaging emerging economies and commodity exporters.

4. Discussion & Conclusion

Some cases within this research provide a definite example of a theoretically perfect crisis. However, there are some notable exceptions. In today's globalized world the expectation of a credit boom created by loose policies of the local central bank is less relevant. Moreover, the connection between domestic savings rates and the interest rate policy of the central bank is irrelevant in this study – Asian countries always possess a rather modest amount of domestic savings, regardless of the basic interest rate policy. Actually, the only situation in which domestic savings rates fall is during the internal deleveraging process combined with near-zero-interest-rate policy, as has been seen in Japan since 1990 up until today – the savings rate gradually fell, from 33.79% of GDP to 18.71% of GDP in 1991 and 2014 respectively, with the reason being the desire to fund aggregate demand.(Worldbank, 2016)

More important contributors to the creation of a bubble are two factors: Firstly, it is liberalization and deregulation of the capital account and the financial system without a subsequent strengthening of institutions focusing on financial oversight, combined with proper risk and debt-to-equity management. Secondly, it is a loose monetary policy of one or more major central banks, which create a surplus of capital in the global financial system. As a consequence, a huge amount of capital starts to flow into the country, consisting of surplus foreign capital seeking higher yields. The local central bank can impose a high interest rate policy, as was the case of the 1990s Thailand; nevertheless, as soon as surplus liquidity in the global system is permitted to flow into the country, the central bank might be unable to sterilize the actual surplus of capital and credit in the financial system. This situation creates imbalances in the local banking system and the country's balance sheet – banks, non-banks, and other companies start to borrow foreign money which bears a lower interest rate than what one can get on the domestic market. At the same time, the current account deficit increases, and might exacerbate the effects of previous fiscal indiscipline. This was precisely the case of Thailand and to some extent Korea during the 1990s crisis – they opened up their capital accounts, a massive amount of capital poured in, and economic agents started to get used to high availability of loans. This point is also applicable to the 2008 crisis in Singapore, which underwent serious liberalization and deregulation of the financial sector which consequently made risky investments with a rather narrow portfolio diversification and poor

hedging of risks. The case also completely applies to the USA, which enjoyed a combination of a surplus of liquidity (provided by Asian states buying the US debt) and the Fed's expansionary policy combined with a rather deregulated financial environment, which created the real estate and domestic demand bubble. On the other hand, even though Asian states in 2007-8 had open capital accounts and experienced some difficulties with a temporary liquidity squeeze and capital outflows, they were able to defend themselves using their exuberant war chests of foreign reserves.

A special note should be taken of short-term maturity and currency denomination of foreign loans. The nature of foreign investment is crucial because there is a huge difference between meaningful foreign direct investments, which are used on long-term projects, and portfolio/other investments, which are short-term and speculative in their nature. Moreover, capital flows increase the current account deficit, which, as an indicator, has some relevance to the eventuality of a possible near-term economic problem. Theory implies that using short-term money to fund long-term projects creates a maturity mismatch because the unavailability of new credit that used to be spent on the roll-over of the existing debt can send even a healthy company into outright bankruptcy. Currency denomination is also very important since it signifies a possible currency risk in case the foreign currency gets stronger or the local currency falls or devalues. This is exactly the situation in which Korea and Thailand ended up in 1997 because of the preference of short-term foreign denominated debt. Moreover, Thailand ran a relatively high current account deficit prior to the crisis, which indicated a possible use of foreign cash to finance domestic aggregate demand. Singapore and Japan did not have such an experience in 1997-8 and hence their troubles were not as significant as in the former states. Asian countries mostly had no such problems during the 2008 crisis due to the reforms they had undertaken after the Asian crisis. With the exception of Korea there were no significant short-term debt exposures of banks or companies.

As the liquidity becomes sufficient and companies get used to cheap available credit, they start to borrow excessively and their debt-to-equity ratio goes up. Actually, it is a kind of herd behavior similar to stock manias – everyone wants to take out as many loans as possible to enlarge the business because everyone else is doing the same and the availability of cheap money is tempting. Investments flow, among others, to stock markets and real estate, or are used to create overproduction in certain sectors. Korea and Thailand of the late 1990s and Japan of the early 1990s are again a good example of this theory, since precisely that happened in the real estate market. However, there was no exorbitant stocks overvaluation

just before the crisis in 1997 – the opposite is true, and the main stock indices, NIKKEI225, SET, KOSPI, and STI, were actually falling well before the crisis exploded. Nevertheless, the theory is confirmed by the extent of the plummeting of both stocks and real estate in these countries. The situation in 2007-8 was a different one, since stock indices of Asian countries were high and plummeted by well over 50%; however, the leverages were normal, and there were no excessive levels of real estate indices.

The following points of a theoretical crisis include overcapacity troubles and the inability of companies to use the acquired credit for meaningful and profitable investments, leading to losses, a potential increase of NPLs, and consequently to worse macroeconomic fundamentals. The change in import & export growth, the fall of industrial production and services, combined with the fall of the export price index proved to be very significant indicators, especially for export-oriented countries. The fall of the export price index displays reduced competitiveness and the subsequent need to decrease prices of exported goods. The fall in exports has a significant detrimental effect on the profitability of companies. Another indicator worth looking at is credit growth in combination with GDP growth – if credit growth is higher or similar to previous years and GDP growth slows or stalls, there might be a possible indication of value destruction and overcapacity problems, especially if the money flows to real estate or other speculative forms of investment. A connection between the fall of exports and the export index, and at the same time an increase in imports, signifies a possible problem of increased consumption and decreased profitability of firms. In this case, Korea, Thailand, and Singapore match the definition of incoming turmoil very well, while Japan is a special case, since it was the fall of the Japanese yen that increased the export price index and real exports – on behalf of other Asian countries. The crisis of 2007-8 was different again, since all countries had relatively healthy fundamentals up until the crisis struck, inflation was moderate, an increase in exports was notable, and the growth of export price indices was relatively stable, with the exception of Japan.

The wake-up call in the case of the 1990s crisis was certainly the abandonment of the Baht's dollar peg, even though the Chinese 50% competitive devaluation of the yuan in January 1994 can be counted as a major contributor to the troubles of Asian countries' export power. The wake-up call of 2007 was clearly the unexpected fall of Lehman Brothers. With regards to the sunspot vs. business cycle theory, the 1997 crisis was kind of predictable due to the impaired growth and the worsening fundamentals of Korea and Thailand, although no-one expected such a virulent contagion. Thus the flotation of the Baht could be regarded as a

sunspot event. The crisis in 2007 was different in the sense that fundamentals in Asia were not the problem; but the economic slowdown in the USA and the unexpected letting down of Lehman Brothers created a widespread panic, and the contagion was eventually felt world-wide – even in Asia. The fall of one of the too-big-to-fail banks certainly can be considered a sunspot event, since nobody really expected such an event. Thus both models are plausible.

As the crisis looms, theory expects that capital flows out of the country, a possible liquidity panic occurs, and spreads spike, hurting banks and financial institutions. Credit is squeezed out of the financial system and economic agents cannot borrow any more money. Unemployment rises, consumer sentiment sours, retail sales plummet, and the whole economy goes into a death spiral. This was exactly the case in Thailand and Korea, which suffered harshly due to the inability of companies and banks to roll-over their debts. Unemployment rose significantly in most cases. Capital outflows also had a significant impact on currencies, thrusting both countries into a situation in which they were forced to massively intervene on the FOREX market in order to defend their currencies against speculative attacks, eventually depleting their reserves. Devaluation of their currencies was inevitable, and only international help could save them from an outright meltdown. Theory expects at least a 35% fall of the local currency against its major rivals, and real cases confirm this theoretical expectation. Nevertheless, the situation in 2008, even though it involved some fall in value of the local currencies, was not an outright crisis thanks to sufficient reserves.

As a consequence of the credit squeeze and the plummeting of the currency companies were suffering and were forced to lay people off, creating high unemployment and, as was the cases in Korea, even social unrest among workers. Japan and Singapore did not experience such dire effects of the 1990s crisis – Singapore immediately devalued SGD, and given its previously good fundamentals combined with a rigid oversight of the banking system it experienced a relatively mild recession in comparison with the havoc in Thailand or Korea. Japan experienced a recession connected with an increase in banking troubles and lower exports, but there were neither currency troubles, nor a probability of default – certainly nothing similar to the early 1990s property bubble crisis which destroyed an enormous amount of wealth in the economy and created a balance sheet problem, which ultimately resolved in the 1997 Asian crisis. The situation in 2008 was very different because countries had accumulated huge amounts of foreign exchange reserves and reformed their financial systems in order to prevent double-mismatches of currency and maturity.

Table 11: Stock indices peak-to-through changes	Peak	Bottom	Change (%)	Months
Thailand SET last peak 1993-1998 (close)	1682,85	214,53	-87,25%	56
Thailand SET last peak 1997-1998 (close)	788,04	214,53	-72,78%	18
Korea KOSPI last peak Nov 1994- Sep 1998 (high/low)	1145,01	287,46	-74,89%	46
Korea KOSPI last peak Jun 1997- Sep 1998 (high/low)	799,54	287,46	-64,05%	15
Singapore last peak STI Feb 1996 - Sep 1998 (high/low)	2504	800,27	-68,04%	31
Singapore last peak STI Feb 1997 - Sep 1998 (high/low)	2270,9	800,27	-64,76%	18
Japan NIKKEI225 last peak Dec 1989 - Oct 1998 (high/low)	38957	12787,9	-67,17%	107
Japan NIKKEI225 last peak Jun 1997 - Oct 1998 (high/low)	20911	12787,9	-38,85%	16
Thailand SET last peak Oct 2007- Nov 2008 (close)	907,28	401,84	-55,71%	13
Korea KOSPI last peak Nov 2007 - Oct 2008 (high/low)	2085,45	914,02	-56,17%	11
Singapore last peak STI Oct 2007 - Mar 2009 (high/low)	2961,4	1455,47	-50,85%	17
Japan NIKKEI225 last peak May 2007 - Oct 2008 (high/low)	18297	6994,8	-61,77%	17
(Yahoofinance.com, 2016)	(Investing.com, 2016)		(SET, 2016)	

Theory expects a fall of stock markets by an average of 55% and of housing prices by 35% stretched over 3.5 years and 6 years respectively. Comparative analysis confirms this view, since all countries suffered severe losses in stocks, although Japan was again a special case, since the main fall occurred during the early 1990s; nevertheless a notable fall of both the stocks and the real estate sectors did occur. Singapore did not encounter real estate troubles, since the country introduced reforms in 1996 due to the forming of a housing bubble. The 2008 crisis hit local stock indices, which fell by well over 50%, but a very brisk recovery occurred in 12-15 months. The real estate sectors of these Asian countries were not in great trouble either, and losses around 20% recovered also relatively quickly due to renewed domestic and foreign demand.

With regards to the direct currency peg or the currency board managing of the exchange rate, it is obvious that a possible macroeconomic stability and cheap loans during conjuncture could be quickly reversed in case of a market turmoil, when the central bank has to defend the peg because fundamentals do not support it and speculators pour in heavily to bet on the decline of the currency. Eventually, the central bank depletes its reserves and is forced to abandon the peg. Thailand may be the best example of this theory, since exactly that happened in 1997 when a combination of capital outflows and speculative attacks rendered the peg unbearable. Regarding Tinakorn's (2006) combined theory of crises and expected >35% fall, empirical research confirms the research as per the table 12. Interestingly, Japanese yen in 2008-9 actually strengthened by a little less than 40% due to safe haven calls and weakening USD. The currencies hardest hit by the crisis were baht in 1998, won in 1998 and 2007-2009.

Table 12: Currencies peak-to-through against USD	Start	End	Change (%)	Months
Thai baht Jun 1997 - January 1998	22,1	56,75	156,79%	7
Korean won Mar 1997 - Dec 1997	901,79	1995	121,23%	9
Japanese yen Jun 1997 - August 1998	110,51	147,67	33,63%	14
Singapore dollar Dec 1996 - Jan 1998	1,3949	1,8164	30,22%	13
Thai baht Jan 2008 - March 2009	29,2	36,31	24,35%	14
Korean won Oct 2007 - Mar 2009	899	1598,65	77,83%	17
Japanese yen Jun 2007 - Oct 2011	124,19	75,55	-39,17%	52
Singapore dollar Jun 2008 - Mar 2009	1,3437	1,5578	15,93%	16
(Investing.com, 2016)				

Contagion was very virulent and intensive during both crises. As soon as Thailand abandoned the dollar peg, intensive capital outflows of panicked investors and greedy speculators hit Asia and spilled-over to other non-related emerging economies, confirming the findings of Kodres & Pritsker (2002) about cross-market hedging of portfolios and Masson (1998) about the existence of monsoonal effects (strengthening of USD and creating troubles in USD-indebted countries), the spill-over effect (due to interconnectedness of some countries), and even pure contagion between otherwise unrelated markets. The contagion spilled-over via both financial links and trade links – Asian banks and financial institutions had investment exposures in Thailand, which were ruined as the crisis struck, creating banking stress in the countries of the investments' origins. Interestingly, Japanese financial institutions were among the first to withdraw capital from Thailand and Korea because of their own problems with ever-worsening balance sheets of Japanese companies and the subsequent low acceptance of possible losses. (Koo, 2008) This move prompted a liquidity squeeze, a credit panic, an inability of companies to roll-over their debts, an increase of NPLs, and a subsequent fire-selling of assets by both domestic and foreign financial institutions. This completely confirms Rajan's (2011) and Forbes & Rigobon's (2001) research about the instability created by pulling of foreign money off the country. Singapore was once again shielded from the turmoil due to effective oversight and relatively low exposures to the troubled countries, although even Singaporean financial institutions could feel some heat because money outflows hit the whole region – liquidity became scarcer and interbank interest rates spiked together with spreads. Contagion via trade links included a problem of heavily integrated supply chains in Asia. As soon as one country started to exhibit troubles, other countries (or their companies) started to find it difficult to get goods produced in the trouble country. The problem of trading links was exacerbated by a massive devaluation in

some countries, which forced other countries to devalue their currencies as well in order to stay competitive – hurting all in the process due to higher inflation and lower aggregate demand.

Contagion in the 2008 crisis was a similar story, with its epicenter in the USA. The countries most heavily integrated in the globalized financial and economic system bore the grunt of the problems – as soon as the USA, the world's biggest economy, was in trouble, a global financial panic hit countries with direct financial exposures in the western banks, most notably Singapore, which had to write off heavy losses due to bad investments. Thailand had quite a low interconnectedness with the western banking system, and it rather focused on its fellow Asian countries. Despite some fairly big capital outflows, the country was not really hit financially. Korea had some troubles again with short-term loans maturity mismatch and a subsequent credit squeeze but it was relatively mild compared to the experience a decade before. Cash outflows and maturity mismatches were cured with the injection of liquidity and foreign exchange reserves combined with a government fiscal stimulus. Japan, given its strong financial links to the West in general, was hit severely, first by exposures to toxic assets, second by the increase in the value of the yen held by foreign investors as a safe haven asset. Interestingly, the fact that the countries which were better intertwined with the western banking system were hit harder disproves the argument of some scholars in favour of creating as interconnected a world banking system as possible in order to prevent possible future financial shocks. (Allen, Babus, & Carletti, 2009)

Trading links were the main culprit in the contagion in 2008, since Asian countries' main exports were focused on the USA and also partly on the EU, both of which were drowning in severe problems. The combination of the falling USD and the lowered aggregate demand that struck the West prompted Asian economies to find another partner for export of their goods and commodities – China.

The whole experience gives us an image which does not clearly support the theoretical base when compared to the case of the 2008 Great Recession. It is arguable whether the claim of Calvo & Reinhart (1996) about contagion spreading from a big economy to smaller ones could be applied to the 1997 crisis, since it was the Baht peg's demise which finally caused the crisis to unfold. On the other hand, Japan's own banking problems forced the institutions to pull out the money from smaller countries (starting in 1995), thus it might be considered a kind of re-exporting of Japanese domestic troubles to other economies. The fall of the yen and

the Chinese competitive devaluation of the yuan in 1994 also played a role in Thailand's and Korea's loss of competitive edge. Nevertheless, this argument is clearly valid in the 2008 crisis because the troubles of the world's biggest economy hit financial and economic markets all around the globe. Masson's (1998) research is not clearly applicable because there were no monsoonal effects (USD actually fell), but one can certainly observe a spill-over through interconnections (all countries in the world are connected to the USA) and no pure contagion (again, all countries are connected somehow to the world's biggest economy).

As per the research by Reinhart & Rogoff (2004), as the crisis ends the government debt rises by 86% on average. The empirical study in this book confirms their findings in cases of South Korea and Thailand, as one can see in the table below.

Table 13: Growth of central government debt (% of GDP)			
Asian crisis	1996	1999	Change
Thailand	3,67	20,01	445,23%
South Korea	8,24	16,75	103,28%
Japan	100,6	133,4	32,60%
Singapore	72,65	87,86	20,94%
Great Recession	2007	2009	Change
Thailand	24,38	26,79	9,89%
South Korea	29,27	30,83	5,33%
Japan	180	207,3	15,17%
Singapore	72,65	87,86	20,94%
World Bank (Worldbank, 2016			

Policy responses were manifold, and, especially in Korea and Thailand during the years 1997-8, they were dictated by outside forces. All countries except Japan devalued their currencies, either by their own will or by forced peg abandonment, thus a contagion via currency is confirmed. As one of a few international policy responses to the currency volatility, a group of countries known as ASEAN+3 pooled resources and created a common capital pool ready to be used in times of crisis and scarce liquidity.

Thailand was saved from inevitable sovereign default by the IMF and the joint action of other, bigger sovereign players, while Korea had to seek the help of the Fund as well because its foreign currency reserves were depleted from pouring the reserve USD into the banking system. Both crisis-struck countries had to go through a contractionary internal-devaluing process administered by the IMF, which included the introduction of austerity measures, hiking basic interest rates, cutting of public expenses, etc. Some parts of the deal with the IMF were unneeded, since the IMF diagnosed the troubles as a public debt / current account imbalance recession, while the truth was that the countries experienced a private/banking crisis of liquidity. Nevertheless, despite introducing austerity and heavily

damaging aggregate demand, the studied countries also introduced some well-needed structural reforms which eventually helped them during the next recession in 2008. Singapore devalued the currency, and thanks to the system of flexible wages the country was not hit by unemployment as much as the other states.

As per the direct comparison of Thailand and Korea in these two crises, the observer might see that austerity policies were not the right answer to a problem created by private companies. The relative mildness of the recession in 2007-8 in Asian countries was the result of a combination of sound fundamentals, a (usually) healthy banking sector, and a massive concerted fiscal and monetary stimulus by the respective governments and central banks. As we can see from the example of Japan, only a monetary stimulus is simply inefficient if the economy is in the process of deleveraging and consumers and companies are simply too indebted to take out another loan. Thus, a monetary-only stimulus does not create additional aggregate demand, and the economy is unable to get up on its feet again – a fact that can be gruesomely felt in the European Union more than 8 years after the fall of Lehman Brothers.

All in all, the final result of this research is that the two researched instances of economic turmoil are rather different events. The 1990s crisis was a standard crisis, in which the troubled country imported too much cash, caught the Dutch disease, and suffered when the cash flew away. The 2000s turmoil was a clear contagion-based recession based mainly on trading linkages and, in some cases, financial linkages as well. Thus the 2008 recession in Asia was not really a fully-fledged financial and/or economic crisis – it was rather a mild short-term recession. However, such results and the astonishing rate of recovery could be achieved only by a combined stimulus effort of the governments and the central banks of the Asian countries, since the main reason of the creation of the demand, which filled the demand vacuum created by western nations, was China. However, it is up to a different research paper to speculate what would have happened if China had not pumped trillions of yuans into its economy. And there is also a question of why do “the best and the brightest”, as the bankers are sometimes called, keep making the same mistakes over and over again since at least the 1930s. Is it a simple behavioral pattern, typical of the human nature? Or is it on purpose? Markets are always falling much faster than growing, and they offer a brilliant short-selling investment opportunity.

The answer might come from further research on the topic.

Table 14: Comparison (change, %, Y/Y) of specific indicators	Thailand				Japan				South Korea				Singapore			
Year	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999
GDP growth	5,65	-2,75	-7,63	4,57	2,61	1,60	-2,00	-0,20	7,60	5,90	-5,50	11,30	7,53	8,29	-2,23	6,10
Central government debt (% of GDP)	3,67	4,64	10,67	20,01	100,60	109,70	120,70	133,40	8,24	10,25	14,67	16,75	72,65	71,33	82,62	87,86
Current account balance (% of GDP)	-7,90	-2,00	12,70	10,20	1,47	2,21	2,93	2,57	-3,95	-1,84	10,64	4,44	14,43	15,26	21,56	16,99
Exports	-1,90	3,76	-6,78	7,41	3,77	13,64	3,88	1,25	3,72	4,97	-2,83	8,60	5,61	0,73	-14,87	9,02
Imports	0,61	-13,36	-33,75	16,94	9,61	6,27	-2,55	-5,83	11,26	-3,81	-35,50	28,38	6,40	-0,09	-18,24	13,31
Export price index	...	...	...	...	4,74	1,88	1,32	-10,07	4,90	4,40	7,50	0,80	-0,94	-1,49	-1,90	0,18
Producer price index	1,83	5,06	12,19	-4,72	-1.7	-0.7	-2.0	-1.4	3,20	3,80	12,20	-2,10	0,11	-1,15	-3,04	2,10
Industrial index	6.6	-4.3	-11.5	6.7	2.9	1.4	-4.5	-0.1	8,18	19,61	2,58	10,86	3,33	4,49	-0,33	13,89
Manufacturing index	7,72	4,62	2,25	5,70	2,09	1,57	-4,40	-2,62	7.1	4.3	-8.3	12.4	2,77	4,30	-0,73	13,03
Services index	5.1	-2.1	-6.4	3.1	2.3	1.6	-0.7	0.6	6.7	6.3	-3.0	8.5	8,20	9,06	-2,61	5,70
Household consumption / Japan - Private consumption	11,42	4,32	-3,16	3,58	2,29	0,88	-0,76	1,18	14,90	10,65	-6,50	14,68	7,74	8,01	-4,95	7,07
Unemployment	1,50	1,50	4,40	4,20	3,35	3,40	4,11	4,68	2,00	2,59	6,84	6,28	2,18	1,95	3,45	3,80
M2 / broad money growth	10,62	19,55	10,07	3,80	3,26	3,06	7,39	0,76	20,90	18,00	23,60	13,50	9,79	10,27	30,25	8,51
	Thailand				Japan				South Korea				Singapore			
Year	2006	2007	2008	2009	2006	2007	2008	2009	2006	2007	2008	2009	2006	2007	2008	2009
GDP growth	4,97	5,44	1,73	-0,74	1,69	2,19	-1,04	-5,53	5,20	5,50	2,80	0,70	8,86	9,11	1,79	-0,60
Central government debt (% of GDP)	24,38	22,99	22,45	26,79	180,00	180,00	184,20	207,30	29,27	28,65	31,38	30,83	83,30	77,69	97,11	107,34
Current account balance (% of GDP)	1,04	5,93	0,34	7,34	4,01	4,86	2,93	2,89	0,35	1,05	0,32	3,72	25,16	26,10	14,57	16,97
Exports	17,00	18,20	15,90	-13,90	9,76	7,27	12,53	-23,44	14,43	14,14	13,60	-13,86	20,10	16,75	10,28	-14,51
Imports	7,80	9,10	26,70	-25,10	5,13	-0,21	0,25	1,43	18,43	15,34	21,98	-25,77	18,94	15,45	16,21	-16,57
Export price index	5,29	5,70	10,45	0,35	3,08	2,22	-6,06	-10,51	2,20	2,50	4,70	2,80	2,04	-3,66	1,31	-8,50
Producer price index	7,08	3,23	12,41	-3,79	2.2	1.8	4.6	-5.3	0,90	1,40	8,50	-0,20	5,04	0,26	7,52	-13,91
Industrial production index	5.3	6.6	2.3	-1.9	3.8	3.5	-0.2	-15.0	6.3	7.1	2.7	0.2	11,92	5,94	-4,18	-4,16
Manufacturing index	12,34	9,51	6,82	-4,05	0,57	3,29	-4,73	-15,52	3,24	9,63	7,27	5,30	11,92	5,94	-4,19	-4,15
Services index	4.9	5.2	1.0	0.1	1.2	1.6	-1.5	-3.1	4.6	5.2	3.2	1.5	8,21	9,11	3,65	-1,04
Household consumption / Japan - Private consumption	8,29	4,06	9,67	-0,09	1,10	0,92	-0,93	-0,67	6,19	7,16	5,97	2,73	4,91	10,81	8,42	0,27
Unemployment	1,50	1,40	1,40	1,50	4,13	3,90	3,99	5,05	3,50	3,20	3,20	3,60	2,79	2,18	2,24	2,85
M2 / broad money growth	8,16	6,25	9,16	6,76	1,01	1,57	2,09	2,71	8,30	11,20	14,30	10,30	19,37	13,41	12,05	11,34
Bank of Japan (BoJ, 2016)	World Bank (Worldbank, 2016			Bank of Thailand (BoT, 2016)	IMF (IMF, 2016)			Bank of Korea (BoK, 2016)			OECD (OECD, 2016)	ADB (ADB, 2016)			

5. Bibliography

ADB. (2016). *SDBS - Asian Development Bank's central statistical database*. Retrieved October 20, 2016, from Asian Development Bank: https://sdbs.adb.org/sdbs/

AEI. (2008). *Singapore experiences its worst recession*. Retrieved October 23, 2016, from Asia Economic Institute: http://www.asiaecon.org/special_articles/read_sp/12064

Agosin, M. R. (2001). Korea and Taiwan in the Financial Crisis. In R. Ffrench-Davis, *Financial Crises in "Successful" Emerging Economies* (pp. 38-64). Washington, D.C. : Brookings Institution Press.

Acharya, V., Gale, D., & Yorulmazer, T. (2009). *Rollover Risk and Market Freezes.* New York: New York University.

Allen, F., & Gale, D. (2007). *Understanding Financial Crises.* Oxford: Oxford University Press.

Allen, F., Babus, A., & Carletti, E. (2009, June 8). Financial Crises: Theory and Evidence. pp. 1-30.

Allen, F., Carletti, E., & Gale, D. (2009, July). Interbank Market Liquidity and Central Bank. *Journal of Monetary Economics, Vol. 56, Issue 5* , pp. 639-652.

Allen, R. E. (1999). *Financial Crises and Recession in the Global Economy.* Cheltenham: Edward Elgar Publishing, Inc.

Balakrishnan, A. (2008, October 10). *Singapore slides into recession*. Retrieved October 20, 2016, from The Guardian: https://www.theguardian.com/business/2008/oct/10/creditcrunch-marketturmoil1

Barton, D., Newell, R., & Wilson, G. (2003). *Managing in Financial Crises.* Hoboken: John Wiley & Sons, Inc. .

Bhattacharya, S., & Gale, D. (1987). Preference Shocks, Liquidity and Central Bank Policy. In W. Barnett, & K. Singleton, *New Approaches to Monetary Economics* (pp. 69-88). Cambridge: Cambridge University Press.

BoJ. (2016). *BOJ Time-Series Data Search*. Retrieved October 20, 2016, from Bank of Japan: http://www.stat-search.boj.or.jp/index_en.html

BoK. (2016). *ECOS - Economic Statistics System*. Retrieved October 20, 2016, from The Bank of Korea: http://ecos.bok.or.kr/

BoT. (2016). *Statistics*. Retrieved October 20, 2016, from Bank of Thailand: https://www.bot.or.th/English/Statistics/Pages/default.aspx

BoT. (2010). The international banking crisis: impact on Thailand’s financial system and policy responses. In B. f. Settlements, *The global crisis and financial intermediation in emerging market economies - BIS Papers No. 54* (pp. 377-385). Basel: Bank for International Settlements.

Boyd, J., Kwak, S., & Smith, B. (2005). The Real Output Losses Associated with Modern Banking Crises. *Journal of Money, Credit and Banking 37* , 977-999.

Bryant, J. (1980). A Model of Reserves, Bank Runs, and Deposit Insurance. *Journal of Banking and Finance 4* , 335-344.

BuBa. (2016). *Discount and lombard rates, base rates*. Retrieved 28 11, 2016, from Deutsche Bundesbank: https://www.bundesbank.de/Navigation/EN/Statistics/Time_series_databases/Money_and_capital_markets/money_and_capital_markets_list_node.html?listId=www_s510_mb02

Calvo, G. A. (1998, November Vol.1 No.1). Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops. *Journal of Applied Economics* , pp. 35-54.

Calvo, G., & Mendoza, E. (2000). Rational contagion and the globalisation of security markets. *Journal of International Economics 51* , 79-113.

Cooper, G. (2008). *The Origin of Financial Crises.* Hampshire: Harriman House LTD.

Corsetti, G., Pesenti, P., Roubini, N., & Tille, C. (1998). *Structural Links and Contagion Effects in the Asian Crisis: A Welfare Based Approach.* New York: New Your University Press.

Crispin, S. W. (2009, February 19). *Eye on Thailand: The Global Financial Crisis*. Retrieved November 20, 2016, from Heinrich Böll Foundation: https://www.boell.de/en/navigation/economy-6199.html

Dell'Ariccia, G., Detragiache, E., & Rajan, R. (2008). The Real Effects of Banking Crises. *Journal of Financial Intermediation 17* , 89-112.

Denoon, D. B. (2007). *The Economic and Strategic Rise of China and India - Asian Realignments after the 1997 Financial Crisis.* New York: Palgrave MacMillan.

Diamond, D., & Dybvig, P. (1983). Bank Runs, Deposit Insurance, and Liquidity. *Journal of Political Economy 91* , 401-419.

Dowling, J. M., & Rana, P. B. (2010). *Asia and the Global Economic Crisis.* Houndmills: Palgrave MacMillan.

ECB. (2016). *Key ECB Interest rates*. Retrieved November 29, 2016, from European Central Bank: https://www.ecb.europa.eu/stats/monetary/rates/html/index.en.html

Eichengreen, B., Rose, A., & Wyplosz, C. (1996). *Contagious Currency Crises - Working Paper, Vol. No. 5681.* Cambridge: National Bureau of Economic Research.

Elliot. (2013, January 24). *Austerity plan is failing, IMF tells Osborne*. Retrieved April 10, 2013, from Guardian Business: http://www.guardian.co.uk/business/2013/jan/24/imf-george-osborne-austerity-failing

e-Stat. (2016). *政府統計の総合窓口* . Retrieved November 21, 2016, from 政府統計の総合窓口 : http://www.e-stat.go.jp/SG1/estat/eStatTopPortal.do

Falcker, M. (2008, November 16). *Japan's Economy, World's Second Largest, Is in Recession*. Retrieved October 23, 2016, from New York Times: http://www.nytimes.com/2008/11/17/business/worldbusiness/17yen.html

Fane, G. (2000). *Capital Mobility, Exchange Rates and Economic Crises.* Cheltenham: Edward Elgar.

FDIC. (2014). *Global Capital Index.* Kansas City: Federal Department Insurance Corporation.

FED. (2016). *Download data - Effective federal funds rates*. Retrieved November 28, 2016, from St. Louis FED - FRED Economic Data Research: https://fred.stlouisfed.org/series/FEDFUNDS/downloaddata

Ffrench-Davis, R., & Ocampo, J. A. (2001). The Globalization of Financial Volatility: Challenges. In R. Ffrench-Davis, *Financial Crises in "Successful" Emerging Economies* (pp. 1-37). Washington, D.C.: Brookings Institution Press.

Forbes, K., & Rigobon, R. (2001). Measuring Contagion: Conceptual and Empirical Issues. In S. Cleassens, & K. Forbes, *International Financial Contagion* (pp. 43-66). New York: Springer.

FRED. (2016). *General Government Debt for South Korea*. Retrieved November 30, 2016, from St. Louis FED FRED Economic Data: https://fred.stlouisfed.org/series/GGGDTAKRA188N

Fukao, K., & Tangjun, Y. (2009, June 08). *Why is Japan so heavily affected by the global economic crisis? An analysis based on the Asian international input-output tables* . Retrieved November 20, 2016, from VOX: http://voxeu.org/article/why-has-japan-been-so-hard-hit-global-crisis

Galimberti, F. (2000). The Economics of the Asian Crises: Roles and Myths. In M. Weber, *After Asian Crises: Perspectives on Global Politics and Economics* (pp. 199-205). New York: St. Martin's Press, Inc. .

Garnaut, R. (1998). The East Asian Crisis. In R. McLeod, & R. Garnaut, *East Asia in Crisis* (pp. 2-25). London: Routledge.

Garside, W. (2012). *Japan´s Great Stagnation.* Cheltenham: Edward Elgar Publishing Limited.

Gerlach, S., & Smets, F. (1995). Contagious speculative attacks. *European Journal of Political Economy 11* , 45-63.

Ghosh, A., Ostry, J., & Quereshi, M. (2016). When Do Capital Inflow Surges End in Tears? *American Economic Review, Vol. 106, No.5* , 581-85.

Goldstein, M. (1998, June Vol. 55). The Asian Financial Crisis: Causes, Cures, and Systemic Implications. *Policy Analyses in International Economics - Institute for International Economics* , pp. 1-72.

Gorton, G. (2008). *The Panic of 2007 - Jackson Hole Conference Proceedings.* Federal Reserve Bank of Kansas City.

Haldane, A. G. (2004). Fixing financial crises in the twenty-first century. In A. G. Haldane, *Fixing financial crises in the twenty-first century* (pp. 3-26). London: Routledge.

Harvey, J. T. (2009). *Currencies, Capital Flows and Crises: A Post Keynesian analysis of exchange rate determination.* New York: Routledge.

Haughton, J., & Khandker, S. R. (2012). *The Surprising Effects of the Great Recession - Policy Research Working Paper 6255.* Washington D.C.: The World Bank.

Hausmann, R. (2015, December). *Ricardo Hausmann on Growth, Inequality and Preventing the Next Financial Crisis*. Retrieved November 22, 2016, from Growth Policy: http://growthpolicy.org/featured/ricardo-hausmann-on-growth-inequality-and-preventing-the-next-financial-crisis

Heider, F., Hoerova, M., & Holthausen, C. (2009). *Liquidity Hoarding and Interbank Market Spreads: The Role of Counterparty Risk.* Frankfurt: European Central Bank.

Horiuchi, A. (1998). Japan. In R. H. McLeod, & R. Garnaut, *East Asia in Crisis* (pp. 163-178). London: Routledge.

Chacko, G., Evans, C., Gunawan, H., & Sjoman, A. (2011). *The Global Economic System: How Liquidity Shocks Affect Financial Institutions and Lead to Economic Crises.* Upper Saddle River: FT Press; Pearson Education, Inc. .

Chekan, K. (2011). Korea and the Great Recession: The Effects of Chaebol Reform on South Korea´s Recovery from the 2008 Financial Crisis. In U. -K. SAIS, *U.S. - Korea 2010 Yearbook* (pp. 97-109). Washington D.C.: U.S. - Korea Institute at SAIS.

Cheng, Y.-S., Marn-heong, W., & Findlay, C. (1998). Singapore and Hong Kong. In R. H. McLeod, & R. Garnaut, *East Asia in Crisis* (pp. 137-152). London: Routledge.

Chirathivat, S., & Mallikamas, S. (2010). Thailand's Economic Performance and Responses to the Global Crisis. *26th Conference of the American Committee for Asian Economic Studies* (pp. 1-32). Kyoto: Doshisha University.

Chomthongdi, J.-c. (2009, April 20). *Thailand and the World Financial Crisis*. Retrieved November 20, 2016, from The Globalist: http://www.theglobalist.com/thailand-and-the-world-financial-crisis/

Chui, M., & Gai, P. (2004). *Private Sector Involvement and International Financial Crises.* Oxford: Oxford University Press.

Chung, H. C. (2010, December). *The Bank of Korea's policy response to the global financial crisis - BIS Papers No. 54.* Retrieved October 20, 2016, from Bank for International Settlements: https://www.bis.org/publ/bppdf/bispap54o.pdf

Chung, K., & Kim, S. (2013). Capital Inflows and Policy Responses: Lessons from Korea´s Experience. In J. Braude, *The Great Recession* (pp. 187-210). Cambridge: Massachusetts Institute of Technology Press.

IMF. (2016). *IMF Data*. Retrieved October 20, 2016, from International Monetary Fund: http://data.imf.org

IMF. (2010). *Republic of Korea: Selected Issues.* Washington D.C. : International Monetary Fund.

Investing.com. (2016). Retrieved October 20, 2016, from Investing.com: http://www.investing.com

Jordan, R. (2009). Singapore in Its Worst Recession for Years. *Journal of Current Southeast Asian Affairs 4/2009* , 96-110.

Kaiser, E. (2008, September 16). *Lehman fallout threatens deeper, wider recession*. Retrieved October 28, 2016, from Reuters.com: http://in.reuters.com/article/businessNews/idINIndia-35488720080915

Kaminsky, G., & Reinhart, C. (1999). The Causes of Banking and Balance-of-Payments Problems. *American Economic Review 89* , 473-500.

Kawai, M., & Takagi, S. (2009). Why was Japan Hit So Hard by the Global Financial Crisis? *ADBI Working Paper Series No. 153* , 1-15.

Khan, H. A. (2004). *Global Markets and Financial Crises in Asia.* Houndmills: Palgrave MacMillan.

Kiersz, A. (2015, June 1). *The global economic 'canary in the coal mine' hasn't looked this sick since the Great Recession*. Retrieved October 22, 2016, from Business Insider: http://www.businessinsider.com/south-korea-export-change-chart-2015-6

Kim, D., & Park, J. (2001). Korean Financial Crisis and Reform: An Overview. In J. J. Choi, *Asian Financial Crisis, Volume 1* (pp. 79-122). Bingley: Emerald Group Publishing Limited.

Kindleberger, C. P., & Aliber, R. Z. (2005). *Manias, Panics and Crashes - A History of Financial Crises.* New York: Palgrave Macmillan.

Kitanaka, A., Nakamura, Y., & Hasegawa, T. (2016, August 14). *The Bank of Japan's Unstoppable Rise to Shareholder No. 1*. Retrieved September 23, 2016, from Bloomberg.com: http://www.bloomberg.com/news/articles/2016-08-14/the-tokyo-whale-s-unstoppable-rise-to-shareholder-no-1-in-japan

Kodres, L. E., & Pritsker, M. (2002, April). Rational Expectations Model of Financial Contagion. *The Journal of Finance Vol. 57, Issue 2* , pp. 769-799.

Koo, R. (2008).

Kotz, D. M. (2010, July Vol. 74, No. 3). The Final Conflict: What Can Cause a System-Threatening Crisis of Capitalism? *Science & Society* , pp. 362-379.

Kownatzki, C. (2010, April 7). *Strong-Arming the Yuan Is More Difficult Than You Realize*. Retrieved November 30, 2016, from The Business Insider: http://www.businessinsider.com/yuan-dollar-conflict-2010-4

Kritayanavaj, B. (2009). Global Financial Crisis 2008: A View from Thailand. *GH Bank Housing Journal* , pp. 38-43.

Krugman, P. (1979). A model of balance-of-payments crises. *Journal of Money, Credit and Banking 11* , 311-325.

Kuttner, K. (2014). *Monetary Policy during Japan's Great Recession: From Self-Induced Paralysis to Rooseveltian Resolve.* Williams College, PIIE, NBER.

Lai, J. (2012). *Financial Crisis and Institutional Change in East Asia.* Houndmills: Palgrave MacMillan.

Lall, S., & Karasulu, M. (2011). Korea: Economic Prospects and Challenges after the Global Recession. *Korea's Economy vol. 27* , 6-12.

Leenabanchong, C. (2001). 1997 Thai Financial Crisis. In T.-S. Yu, & D. Xu, *From Crisis to Recovery - East Asia Rising Again* (pp. 257-304). Singapore: World Scientific Publishing Co. .

Lim, H. S. (2001). Japan´s bubble Economy and Asia. In T.-s. Yu, & D. Xu, *From Crisis to Recovery - East Asia Rising Again* (pp. 29-46). Singapore: World Scientific Publishing Co.

Lipsky, J. (2009, May 18). *Overcoming the Great Recession An Address to the Japan National Press Club, Remarks by John Lipsky, First Deputy Managing Director of the International Monetary Fund, at the Japan National Press Club, Tokyo, May 18, 2009*. Retrieved October 23, 2016, from International Monetary Fund: https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp051809

Llaudes, R., Salman, F., & Chivakul, M. (2010). *The Impact of the Great Recession on Emerging Markets.* International Monetary Fund.

Lo, C. (2009). *Asia nd the Subprime Crisis.* Palgrave MacMillan: Houndmills.

MAS. (2016). *Domestic Interest Rates*. Retrieved October 22, 2016, from Monetary Authority of Singapore: https://secure.mas.gov.sg/dir/domesticinterestrates.aspx

MAS. (2011, October). *Recent developments in the Singapore economy.* Retrieved October 23, 2016, from Bank for International Settlements: https://www.bis.org/publ/bppdf/bispap57w.pdf

Masson, P. (1998). *Contagion: monsoonal effects, spillovers, and jumps between multiple equilibria - working paper 98/142.* Washington D.C. : International Monetary Fund.

Masters, C. (2008, November 18). *Why Japan Has Slipped Into Recession*. Retrieved October 22, 2016, from Time.com: http://content.time.com/time/business/article/0,8599,1859997,00.html

Minsky, H. P. (1976). *A Theory of Systemic Fragility.* New York: New York University Press.

MLITT. (2016). *Japan Property Price Index*. Retrieved November 30, 2016, from Ministry of Land, Infrastructure, Transport and Tourism: http://tochi.mlit.go.jp/english/land-prices/property-price-index

Molteni, C. (2000). The Crisis in Northeast Asia: the Cases of Japan and South Korea. In M. Weber, *After the Asian Crises - Perspectives on Global Politics and Economics* (pp. 28-49). Houndmills: MacMillan Press Ltd.

Morris, C. R. (1999). *Money, Greed, and Risk: Why financial crises and crashes happen.* New York: Tmes Books, Random House, Inc.

Moschella, M. (2010). *Governing Risk: The IMF and Global Financial Crises.* Houndmills: Palgrave Macmillan.

Ngiam, K.-j. (2001). Coping with the Asian Financial Crisis: The Singapore Experience. In D. Xu, & S. Yu, *From Crisis to Recovery* (pp. 141-172). Singapore: World Scientific Publishing Co. Pte. Ltd. .

Nijathaworn, B. (2012, January 18). *Thailand: from financial crisis to financial resilience*. Retrieved November 20, 2016, from East Asia Forum: http://www.eastasiaforum.org/2012/01/18/thailand-from-financial-crisis-to-financial-resilience/

NIKKEI225. (2016). *Historical Data*. Retrieved October 2016, 2016, from Nikkei 225 Official Site: http://indexes.nikkei.co.jp/en/nkave/archives/data

OECD. (2016). *OECD Data*. Retrieved October 20, 2016, from The Organisation for Economic Co-operation and Development: https://data.oecd.org/gga/general-government-debt.htm

Ostry, J. D., Loungani, P., & Furceri, D. (2016). Neoliberalism: Oversold? . *Finance & Development June 2016* , 38-41.

Palit, A. (2011). South Asia and the Global Financial Crisis: Impacts and Implications. In A. Palit, *Beyond the Global Financial Crisis* (pp. 11-22). Singapore: World Scientific Publishing Co. Pte. Ltd. .

Panitch, L., & Gindin, S. (2011). Capitalist Crises and the Crisis This Time. *Socialist Register vol. 47* , 1-20.

Pham, L. (2016, May 26). *Lending in China Is So Risky That Cows Are Now Collateralized*. Retrieved May 27, 2016, from Bloomberg.com: http://www.bloomberg.com/news/articles/2016-05-25/cash-cows-fund-china-dairy-firm-that-defied-stock-market-slump

Phongpaichit, P., & Baker, C. (2004). Aftermath: Structural Change and Policy Innovation after the Thai Crisis. In K. Jomo, *After the Storm* (pp. 150-172). Singapore: Singapore University Press.

Plumer, B. (2012, October 12). *IMF: Austerity is much worse for the economy than we thought*. Retrieved April 10, 2013, from The Washington Post: http://www.washingtonpost.com/blogs/wonkblog/wp/2012/10/12/imf-austerity-is-much-worse-for-the-economy-than-we-thought/

Pongpattananon, N., & Tansuwanarat, K. (2011). Impact of the Global Financial Crisis on Thailand´s Real Economy: Linkages between Financial and Trade Sector. In R. Y. Siregar, & V. C.S. Lim, *Real Sector Propagation of the Recent Global Financial Crisis* (pp. 347-379). Kuala Lumpur: The SEACEN Centre.

Rajan, R. S. (2011). *Emerging Asia - Essays on Crises, capital Flows, FDI and Exchange Rate.* Basingstoke: Palgrave Macmillan.

Rajan, R. S., & Gopalan, S. (2011). Banking Sector Internationalisation in Asia. In R. S. Rajan, *Emerging Asia* (pp. 54-62). Basingstoke: Palgrave MacMillan.

Reinhart, C. M., & Rogoff, K. S. (2009). *The Aftermath of Financial Crises.* Cambridge: National Bureau of Economic Research.

Roubini, N., & Setser, B. (2004). *Bailouts or Bail-Ins - Responding to Financial Crises in Emerging Markets.* Washington, D.C.: Institute for International Economics.

SET. (2016). *Market Data - Market Statistics.* Retrieved October 20, 2016, from The Stock Exchange of Thailand: http://www.set.or.th/static/mktstat/Table_Index.xls?001

Sheng, A. (2009). *From Asian to Global Financial Crisis.* Cambridge: Cambridge University Press.

Sheng, Y., & Kirinpanu, S. (2000). Once Only the Sky was the Limit: Bangkok´s Housing Boom and the Financial Crisis in Thailand. *Housing Studies - 15* , 11-27.

Shiller, R. J. (2009). *Irrational Exuberance.* New York: Broadway Business Books.

Schaefer, S. (2015, July 7). *Forbes Flashback: How George Soros Broke The British Pound And Why Hedge Funds Probably Can't Crack The Euro*. Retrieved July 10, 2016, from Forbes.com: http://www.forbes.com/sites/steveschaefer/2015/07/07/forbes-flashback-george-soros-british-pound-euro-ecb/#3dca8a5c3cef

SINGSTAT. (2016). *Statistics Singapore*. Retrieved October 20, 2016, from Department of Statistics Singapore: http://www.singstat.gov.sg/statistics

SRX. (2016). *SRX Property Index SPI Chart*. Retrieved October 21, 2016, from SRX Singapore Property Price Index: https://www.srx.com.sg/price-index

Szikla, A. J. (2014, October 4). *Reflections from South Korea*. Retrieved October 22, 2016, from The Huffington Post: http://www.huffingtonpost.com/alexander-j-szikla/south-korea-real-estate_b_5121329.html

Tinakorn, P. (2006). Indicators and analysis of vulnerability to currency crisis: Thailand. In L. R. Klein, & T. Shabbir, *Recent Financial Crises: Analysis, Challenges and Implications* (pp. 69-117). Cheltenham: Edward Elgar Publishing Limited.

Tradingview. (2016). Retrieved October 20, 2016, from Tradingview.com: https://www.tradingview.com/

Trivellato, B. (1999). Southeast Asia Facing Economic, Political and Social Crisis. In M. Weber, *After the Asian Crises* (pp. 50-69). Houndmills: MacMillan Press Ltd.

Wallerstein, I. (2011, 03 01). *Structural Crisis in the World-System: Where Do We Go from Here?* Retrieved March 8, 2013, from Monthly Review: http://monthlyreview.org/2011/03/01/structural-crisis-in-the-world-system

Warr, P. G. (1998). Thailand. In R. H. McLeod, & R. Garnaut, *East Asia in Crisis* (pp. 42-56). London: Routledge.

Wolfson, M. H. (2002, June Vol. XXXVI). Minsky´s Theory of Financial Crises in a Global Context. *Journal of Economic Issues* , pp. 393-400.

Worldbank. (2016). *World Bank Open Data*. Retrieved October 20, 2016, from The World Bank: http://data.worldbank.org/

Yahoofinance.com. (2016). *STI Historical Prices*. Retrieved October 21, 2016, from Yahoo! Finance: https://finance.yahoo.com/quote/%5ESTI/history?period1=631148400&period2=1477000800&interval=1mo&filter=history&frequency=1mo

Yang, J. (2001). Financial liberalization, capital mobility and financial crises. In J. J. Choi, *Asian Financial Crisis Volume 1: Financial, Structural and International Dimensions* (pp. 175-197). Bingley: Emerald Group Publishing Limited.

Yuvejwattana, S. (2015, February 2). *Thailand's Unemployment Rate is a Ridiculously Low 0.6%. Here's Why*. Retrieved from Bloomberg.com: http://www.bloomberg.com/news/articles/2015-02-02/thailand-s-unemployment-rate-is-a-ridiculously-low-0-6-here-s-why

Appendix

A1: Abstract

The main purpose of this thesis is to summarize the theoretical approach to financial, economic, currency, and sovereign debt crises and create a common analytical framework. The analytical framework is then applied to make a comprehensive comparative analysis of the crises in Asian countries (South Korea, Japan, Thailand, and Singapore) during the East Asian crisis in 1997-1998 and the Great Recession in 2007-2008.

The thesis includes research on liberalization and deregulation of the financial sector prior to the crisis, which caused high-yield seeking capital flows to pour into the researched country. The flows tend to distort the domestic market and create imbalances, eventually ending in an oversupply of productive capacity, an extreme valuation of assets, and unsustainably high levels of debt. A wake-up call may trigger a set of events which start the financial and/or economic crisis within the country. Due to the globalized nature of financial markets, contagion may spill-over from the financial sector to the real economy, to other states within the region via financial or trading linkages, and eventually to other regions not directly intertwined with the region of the crisis' origin.

The results show that the theoretical basis is very relevant for Thailand and Korea in 1997-8 and Singapore in 2007-8, where both a financial and an economic crisis loomed. Countries heavily intertwined both financially and economically with the region of origin of the crisis suffered the most. The damage to the country's economy depends on healthy fundamentals before the crisis, the strength of regulatory and oversight institutions, and the degree of interconnectedness. The speed of recovery depends on timely, concerted, and effective fiscal and monetary stimulus and reforms. The crisis in Asia in 1997 was a combined economic, financial, and currency crisis, bordering on a sovereign debt default crisis. The late 2000s recession in Asia was a relatively mild contagion-driven economic crisis hurting mainly the financial sector and exports of Asian countries.

Keywords: Japan, Singapore, Thailand, Republic of Korea, South Korea, Capital flows, Deregulation, Liberalization, Currency crisis, Economic crisis, Sovereign debt crisis, Financial crisis, Contagion, Leverage, Debt, Default

A2: Kurzzusammenfassung

Der Hauptzweck der vorliegenden Arbeit ist die Zusammenfassung des theoretischen Zugangs zur finanziellen, ökonomischen, Währungs- und Staatsschuldenkrise und die Erstellung eines allgemeinen analytischen Rahmens. Der analytische Rahmen wird dann angewandt, um eine umfassende vergleichende Analyse der Krisen in asiatischen Ländern (Südkorea, Japan, Thailand und Singapur) während der Asienkrise in den Jahren 1997-1998 und der großen Rezession in den Jahren 2007-2008 zu erstellen.

Diese Arbeit umfasst Forschung zu der Liberalisierung und Deregulierung des Finanzsektors vor der Krise, die verursachte, dass Kapitalflüsse mit dem Ziel hoher Rendite in das untersuchte Land floss. Die Flüsse neigen dazu, die heimischen Märkte zu verzerren und Ungleichgewichte zu erzeugen, die dann in Überversorgung durch produktive Kapazitäten, extremer Anlagenbewertung und untragbar hohen Schuldniveaus enden. Ein Weckruf kann eine Reihe an Ereignissen auslösen, die die Finanz- und/oder Wirtschaftskrise in dem Land starten. Aufgrund der globalisierten Natur der Finanzmärkte kann es zum Übergreifen vom Finanzsektor auf die Realwirtschaft, auf andere Staaten in der Region über Finanz- oder Handelsverbindungen und schließlich auf andere Regionen, die nicht direkt mit der Region verbunden sind, in der die Krise ihren Ursprung hat, kommen.

Die Ergebnisse zeigen, dass die theoretische Basis sehr relevant für Thailand und Korea in den Jahren 1997-98 sowie in Singapur in den Jahren 2007-08 ist, wo sich sowohl die Finanz- als auch die Wirtschaftskrise abgezeichnet hat. Länder, die sowohl finanziell als auch wirtschaftlich mit dem Ursprung der Krise verbunden waren, litten am meisten. Der Schaden für die Wirtschaft des Landes hängt von den gesunden Grundlagen vor der Krise, der Stärke der Regulierungs- und Aufsichtsinstitutionen sowie dem Grad an Vernetzung ab. Die Geschwindigkeit der Erholung hängt von zeitnahen, abgestimmten und effektiven Fiskal- und Finanzstimuli und Reformen ab. Die Asienkrise 1997 war eine kombinierte Wirtschafts-, Finanz- und Währungskrise, die in eine Staatsbankrottkrise mündete. Die Rezession in Asien in den späten 2000ern war eine relativ milde Contagion-getriebene Wirtschaftskrise, die vor allem den Finanzsektor und Expore asiatischer Länder beinträchtigt hat.

Schlagwörter: Japan, Singapur, Thailand, Republik Korea, Südkorea, Kapitalflüsse, Deregulierung, Liberalisierung, Währungskrise, Wirtschaftskrise, Staatschuldenkrise, Finanzkrise, Contagion, Leverage, Schulden, Kreditausfall