

# **The Global Financial Crisis Causes, Consequences, and Lessons**

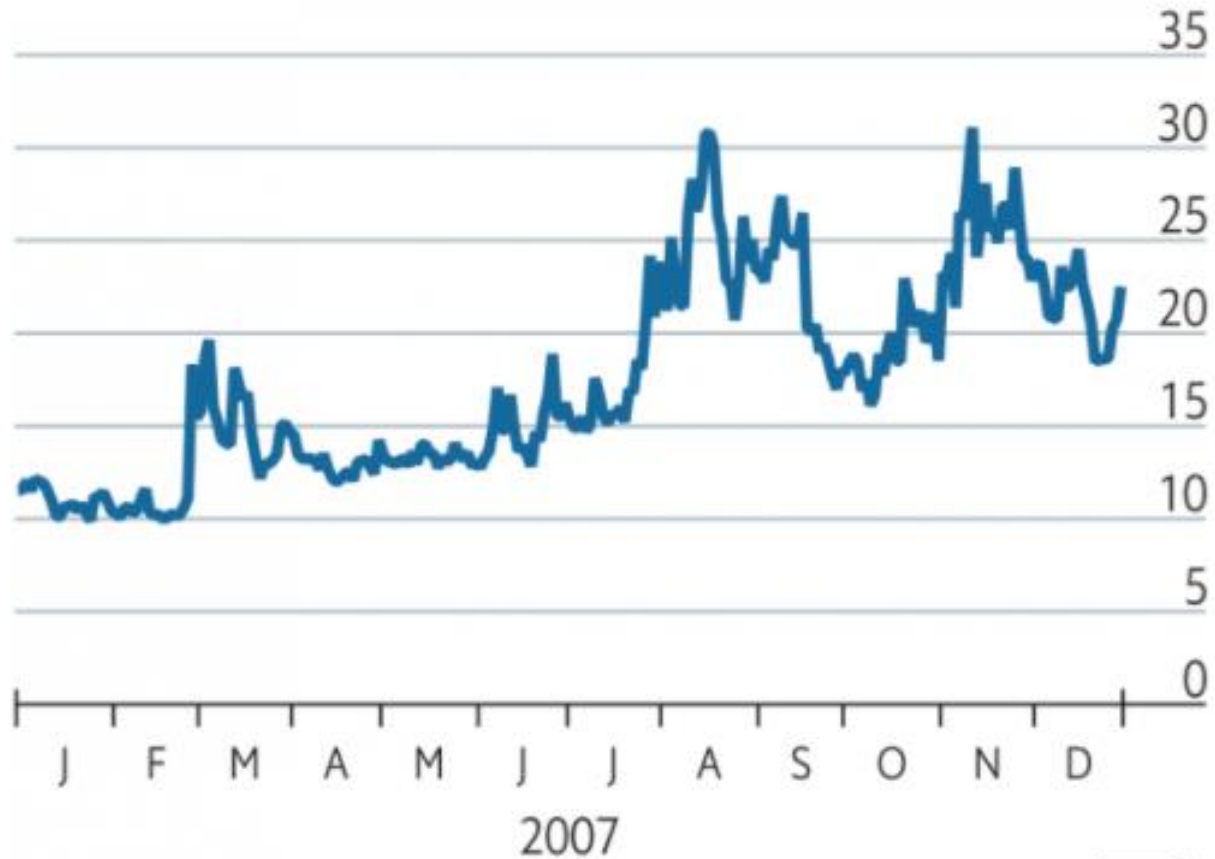
Bhanupong  
Lecture 8

# A decade after the GFC

- August 9, 2017 marks ten years since the event that many believe triggered the financial crisis—the **suspension of trading** by *BNP Paribas*, a French bank, in three funds linked to American mortgage-backed securities.
- Short-term interest rates, and volatility, soared as banks struggled to get liquidity; the turmoil soon contributed to the collapse of *Northern Rock*, a British mortgage lender.

## When doubts set in

Volatility index (VIX), percentage points



Source: Thomson Reuters



# The memory of 2007 still looms large

- The BNP announcement wasn't the first sign of trouble: mortgage lenders started to fail in early 2007 as homeowners defaulted on risky loans, and ***Bear Stearns*** was forced to bail out two of its hedge funds in June.

# The long process of monetary easing began

- But BNP's move forced the European Central Bank to supply liquidity to the markets, starting the long process of monetary easing by the world's central banks, which eventually included zero interest rates and quantitative easing—policies that in many cases continue today.
- ***Debt ratios remain high, making skittish central banks reluctant to change policy.***
- The memory of 2007 still looms large.

# Outline

1. Global financial crisis in 2008
2. Impact on Thailand
3. Recovery in Asia
4. Lessons
5. Minsky moment
6. The shape of things to come

# 1. The global financial crisis

While it was brewing in 2007

- **March 16, 2007**

**Bear Stearns** (an investment bank) was bought by JPMorgan Chase & Co. in a deal orchestrated by and backed up by the government following a ***sharp decline in shares*** and a collapse in confidence in the company.

- **July 11, 2007**

Federal regulators seized **IndyMac Bank** after it succumbed to the pressures of ***tighter credit, tumbling home prices*** and rising ***foreclosures***.

IndyMac is the largest thrift ever to fail in the U.S.

## Timeline of the crisis

### ***The crisis took some years in the making***

September 7, 2007

In a bid to stabilize the nation's troubled housing market, the US government seized control of **Fannie Mae** and **Freddie Mac**

These two publicly traded companies together hold or guarantee about half the mortgage loans in USA.

# Lehman Brothers Debacle

**September 15, 2008** Lehman Brothers filed for bankruptcy

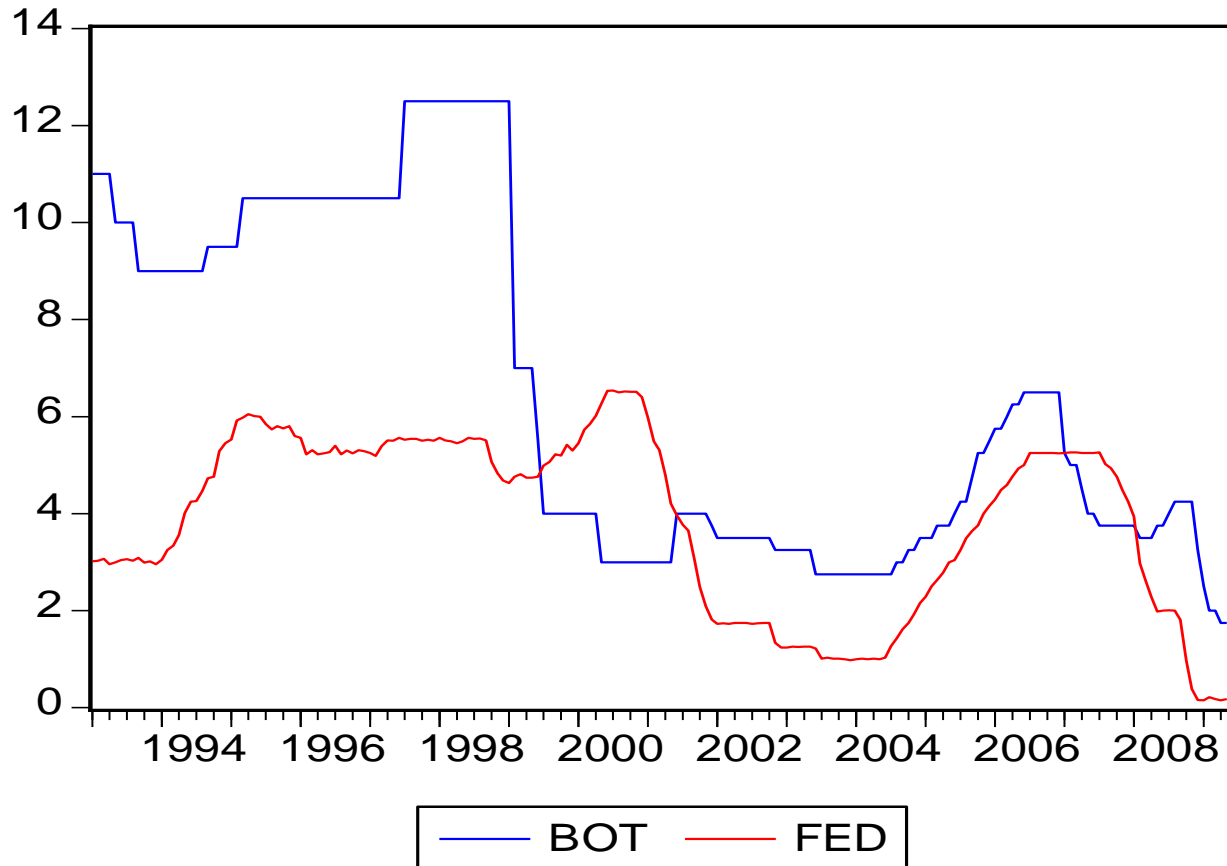
- Lehman Brothers International (Europe)—LBIE, the London subsidiary of Lehman Brothers Holdings, New York—closed for business, leaving 839,000 failed transactions totaling billions of dollars hanging in the air.
- PricewaterhouseCoopers (PWC), the administrator, was still trying to sort out most of them, which relate to over 100 separate units of LBIE.
- It has managed to pay claims of around \$13 billion (£8 billion) but wants the American parent to settle up to \$100 billion more.

# The period of low interest rates

- In 2002, to spur US economy which was experiencing a ***mild recession*** as a result of the bursting of the dot.com bubble and the terrorist attack in 2001, the Fed decided to lower interest rates.
- Cheap credit and lax lending policies encouraged consumers to purchase new homes and take out additional mortgage loans for personal consumption like buying a new car or going on vacation.

# The Fed Monetary easing began in 2002

## Notice the interest rate differential



## How the *subprime* mortgage market was created

- Banks provided loans even to borrowers who had **questionable ability** to repay such loans.
- Thus, the **subprime** mortgage market was created.
- Subprime mortgage loans carry **adjustable mortgage rates** where borrowers initially pay interest **below** the market rate for a pre-determined period and pay **market rates** for the rest of the period of the mortgage.

# Securitization

- The aggressive expansion of the subprime market in years 2003-2005 was fueled by **securitization**.
- It is the process of taking an **illiquid** asset, or group of assets, and through ***financial engineering***, transforming them into a security.

# Collateralized Debt Obligations (CDOs)

- A typical example of securitization is a mortgage-backed security, which is a type of asset-backed security that is secured by a collection of mortgages.
- Investment banks, such as ***Bear Sterns*** came up with CDO's (Collateralized Debt Obligations) which are sophisticated financial tools that ***repackage*** individual loans into a product that can be sold on the secondary market.

## In financial laboratories, there are financial engineering processes

- These sophisticated financial packages consist of **auto loans, credit card debt, or corporate debt.**
- They are called collateralized because they have some types of collateral behind them.
- CDOs are in effect a financial WMD (Weapon of Mass Destruction)

# CDOs and market liquidity

- CDOs were created to provide *more liquidity* in the economy.
- It allows banks and corporations to sell off debt, which frees up more capital to invest or loan.
- However, the **downside** of CDOs is that it allows the originators of the loans to avoid having to collect on them when they become due, since the loans are now owned by other investors.

# US Commercial and industrial loans (billion USD)

US COMMERCIAL AND INDUSTRIAL LOANS

The creation of CDOs was a reason why the U.S. economy had been robust for five years before the GFC.



# Why discipline matters

- This ability to create liquidity make banks **less disciplined** in adhering to strict lending standards.
- Another downside risk is that they are so complex that often the buyers aren't really sure what they are buying.
- They often rely on their trust of the bank selling the CDOs without doing enough research to be sure the package is really worth the price.

# Buyers beware

- Some Thai banks did not buy CDOs because they did not understand their complexity.
- CDOs became widely popular (thus contributing further to the expansion of mortgage loans) among investors who were attracted by their high return.

# Liquidity crisis in 2007

- The opaqueness and complexity of CDOs can cause a market panic if something happens to make sellers lose their trust in the product.
- This then makes the CDOs difficult to resell.
- This difficulty helped cause the 2007 banking liquidity crisis.

# Credit Default Swap (CDS)

- CDS is an insurance policy against a bond default, a financial instrument for swapping the risk of debt default.
- The widespread availability of CDS written by issuers, primarily **AIG**, enhanced CDO's appeal.

# The buyer of CDS

- Credit default swaps may be used for emerging market bonds, mortgage backed securities, corporate bonds and local government bonds.
- The buyer of a credit default swap pays a premium for effectively insuring against a debt default.
- The buyer receives a lump sum payment if the debt instrument is defaulted.

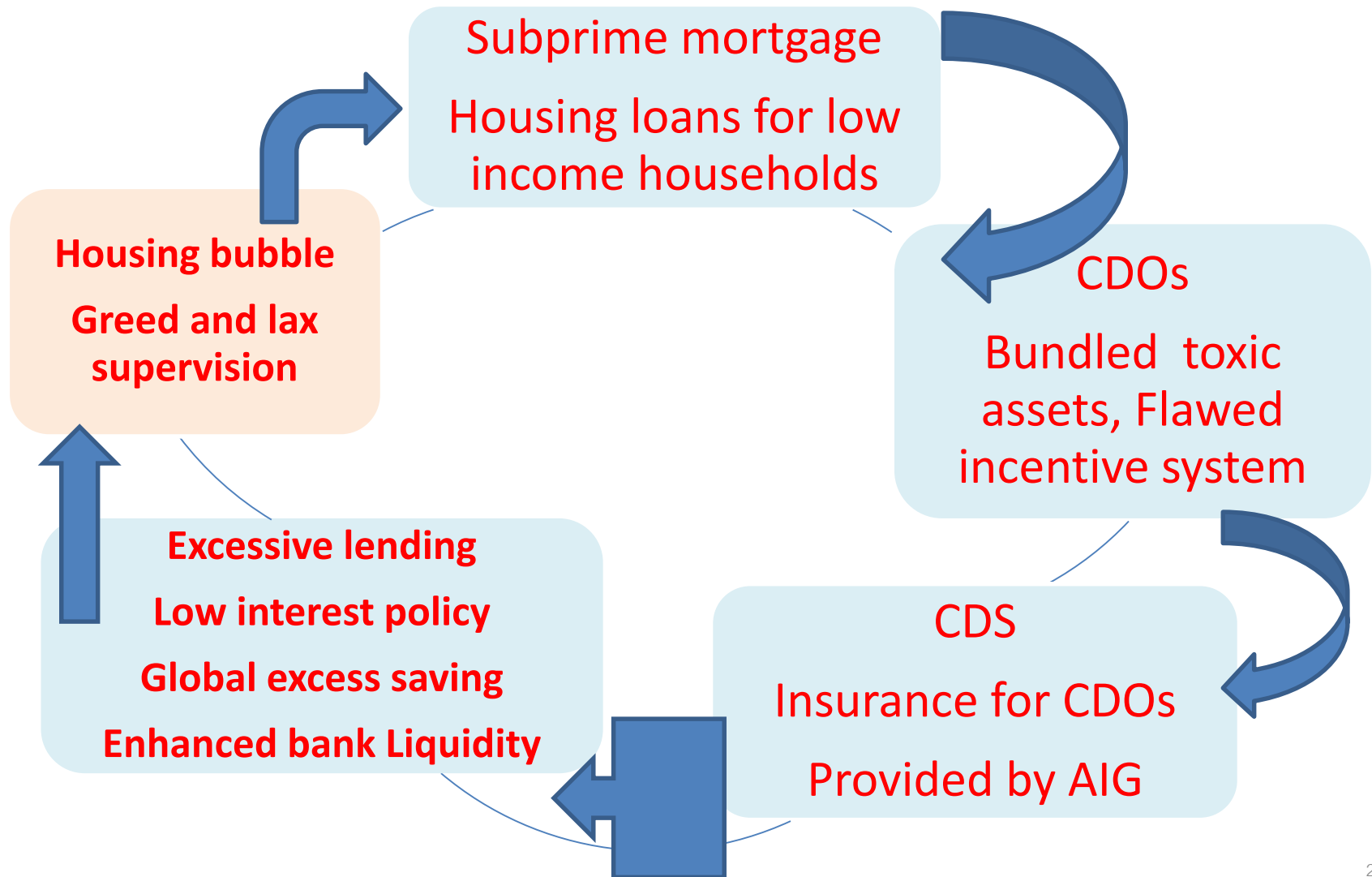
# The seller of CDS

- The seller (AIG) of a credit default swap *receives monthly payments* from the buyer.
- If the debt instrument defaults, AIG has to pay the agreed amount to the buyer of the credit default swap.
- AIG wrote more than \$2.7 trillion in derivatives contracts. Investors used one kind-CDS—to hedge against bonds going bad.

# Triple A rating?

- Banks bought the swaps, reassured by AIG's AAA debt rating to manipulate capital requirements.
- When the bonds AIG insured against started to tank and the issuer's own rating was cut, it all came crashing down.
- AIG has \$300 billion in potential CDS losses. Yet AIG has book value of only \$50 billion. If AIG has to pay out on those contracts, it will go bankrupt six times over.

# A perfect recipe for the financial crisis



# Causes of the financial crisis: Imports or homemade?

- (1) a U.S. monetary policy that remained expansionary for too long after the 2002 recession, or
  - (2) excess saving outside the United States that drove down global interest rates to levels that fueled the speculation.
- While both of these hypotheses could serve to explain the consequent bubble in U.S. asset prices, they do not provide an immediate explanation as to why defaults in a relatively **small** portion of the credit markets (sub-prime mortgages) had such catastrophic system-wide consequences.

# Who is to blame?

- Purchasers of the mortgage-backed securities in the secondary market also failed to accurately evaluate the quality of the underlying assets and to understand the risks involved.
- The complexity and lack of transparency of the instruments contributed to the problem.
- Similar mistakes were made by the rating agencies (Standard & Poors, Moody)

# Before the bubble burst

Residential estate price-income ratio  
(% change between 1997 and 2007)

UK	93.9
USA	23.4
Spain	67.3
Sweden	62.0
Ireland	86.1
Japan	-28.4

# Flawed incentives and regulations

- A low level of global interest rates may have helped create the conditions for the asset price boom in housing markets and the speculative excesses.
- However, the flawed incentives and regulatory structure within the United States were far more fundamental.

# The real WMD

- The promotion of new financial innovations without a rigorous effort to evaluate their implications for systemic risk, a compensation system that emphasized high immediate returns, and a compliant financial regulatory structure all stand out as important direct contributors.

# Distorted incentive system

- Low real interest rates were a global phenomenon, and a large number of European economies experienced housing price increases of greater magnitude than the United States.
- But the distorted incentives of the private securitized mortgage market were largely American.
- It is difficult to explain the crisis in terms of macroeconomic conditions without reference to the ***microeconomic distortions*** in the U.S. financial system.

# Too big to fail

- Years of unregulated and risky deals exposed AIG to catastrophic losses.
- It paid \$165 million in retention bonuses to executives to the same people who helped created the mess, which cost the U.S tax payers \$170 billion—and counting.
- In the case of Thailand, *“Ministry of Finance cannot allow banks to go bankrupt”* said Permanent Secretary of the Ministry of Finance (September 2007)

# House price bubbles and the financial panic

- The housing price bubble burst in mid-2006 and both housing prices and housing starts began a long period of contraction.
- With declining home prices, borrowers were unable to refinance their loans and default rates soared.

# Economist's house price indicator

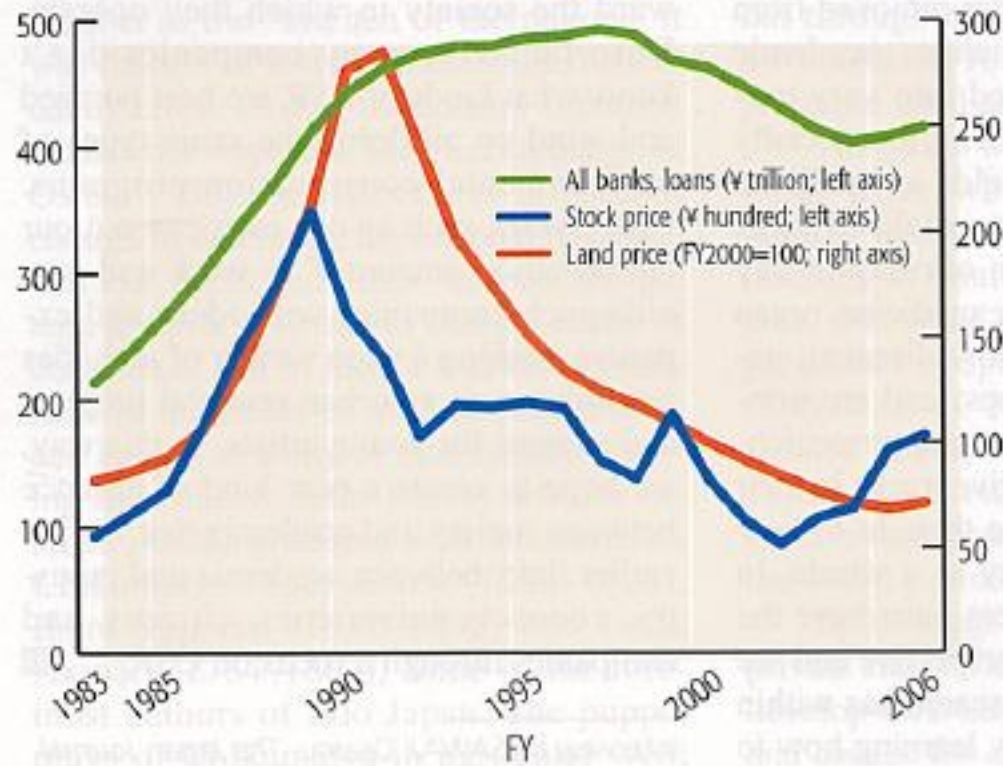
## Minsky moment:

March 2009 (%y-o-y)

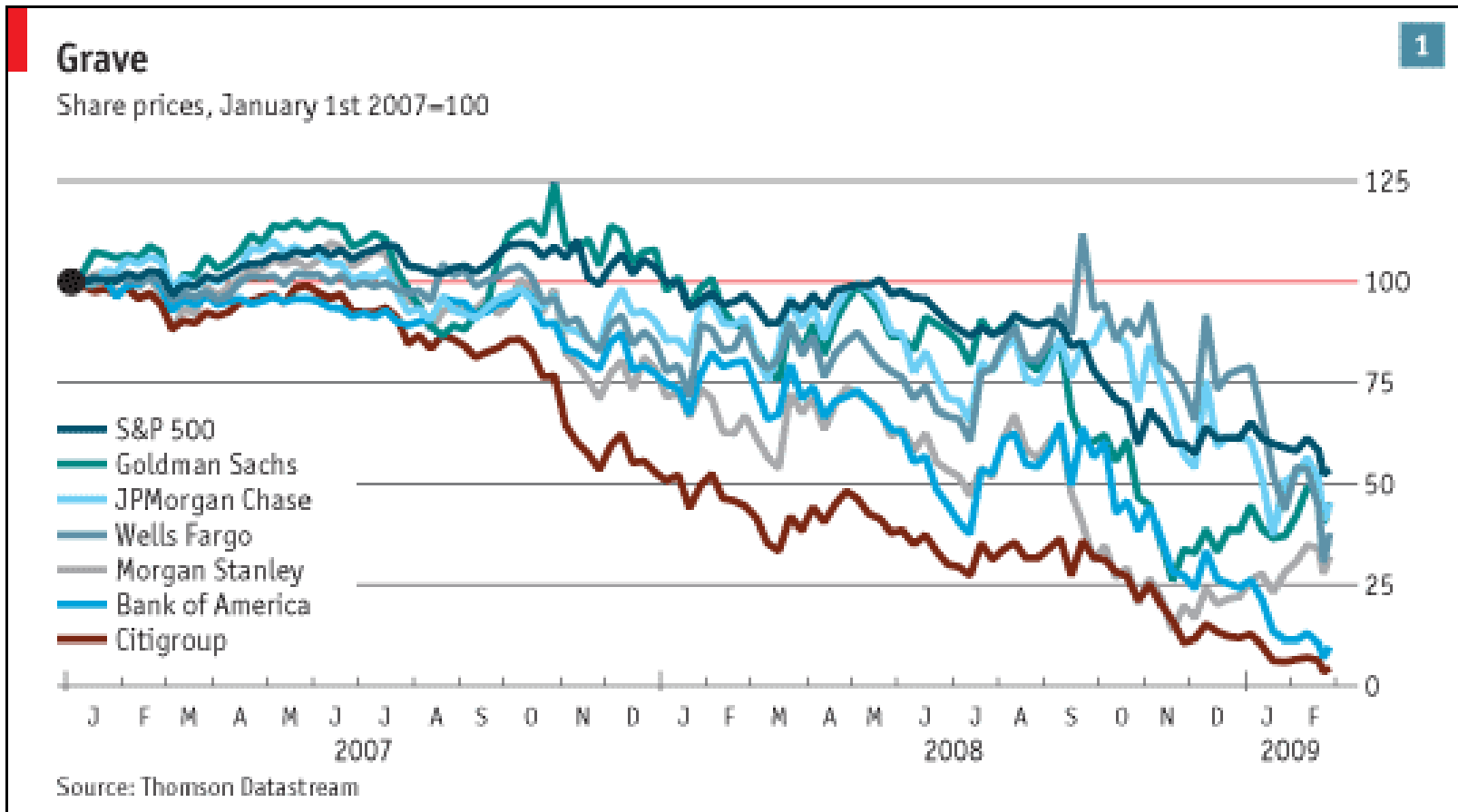
<b>USA</b>	<b>-19.2</b>		
UK	-17.6	Spain	-3.2
HK	-14.0	Germany	-2.5
Ireland	-9.8	Japan	-1.8
New Zealand	-8.9	Sweden	-1.6
Netherlands	-5.2	China	-0.9
Denmark	-4.9	France	0.8
Singapore	-4.7	Italy	1.1
Australia	-3.3	Switzerland	3.7

# Bank credit, land and stock prices in Japan

Figure 1: Loans Outstanding of all Banks



# Stock market crash in the US



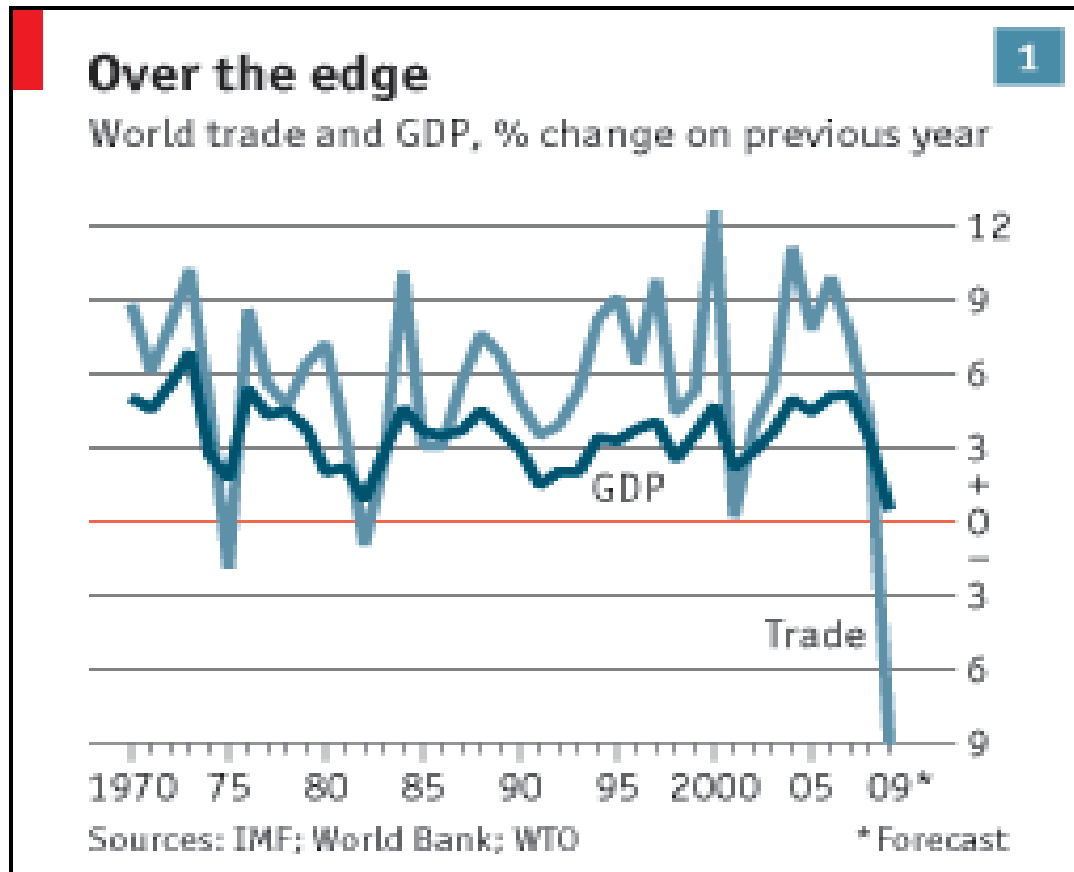
# Global Rebalancing

- *An end to the consumption binge of the last decade should be* good news for the U.S. economy.
- Realignment away from a focus on domestic consumption would imply a ***shift of resources toward the export sector*** and a gradual reduction in the U.S. current account imbalance to more sustainable levels.

## 2. Impact of GFC on Thailand

- The impact of US financial crisis and the ensuing economic recession on Thailand is evident
- **Negative economic growth:** According to Thailand's Finance Ministry, the Thai economy contracted by as much as 3% in 2009 if no additional stimulus was implemented.
- **Lower exports:** The US is Thailand's number one export market accounting for a total 18% of total exports. With the US economy in recession, demand for Thai products declined.

# Shrinking world trade



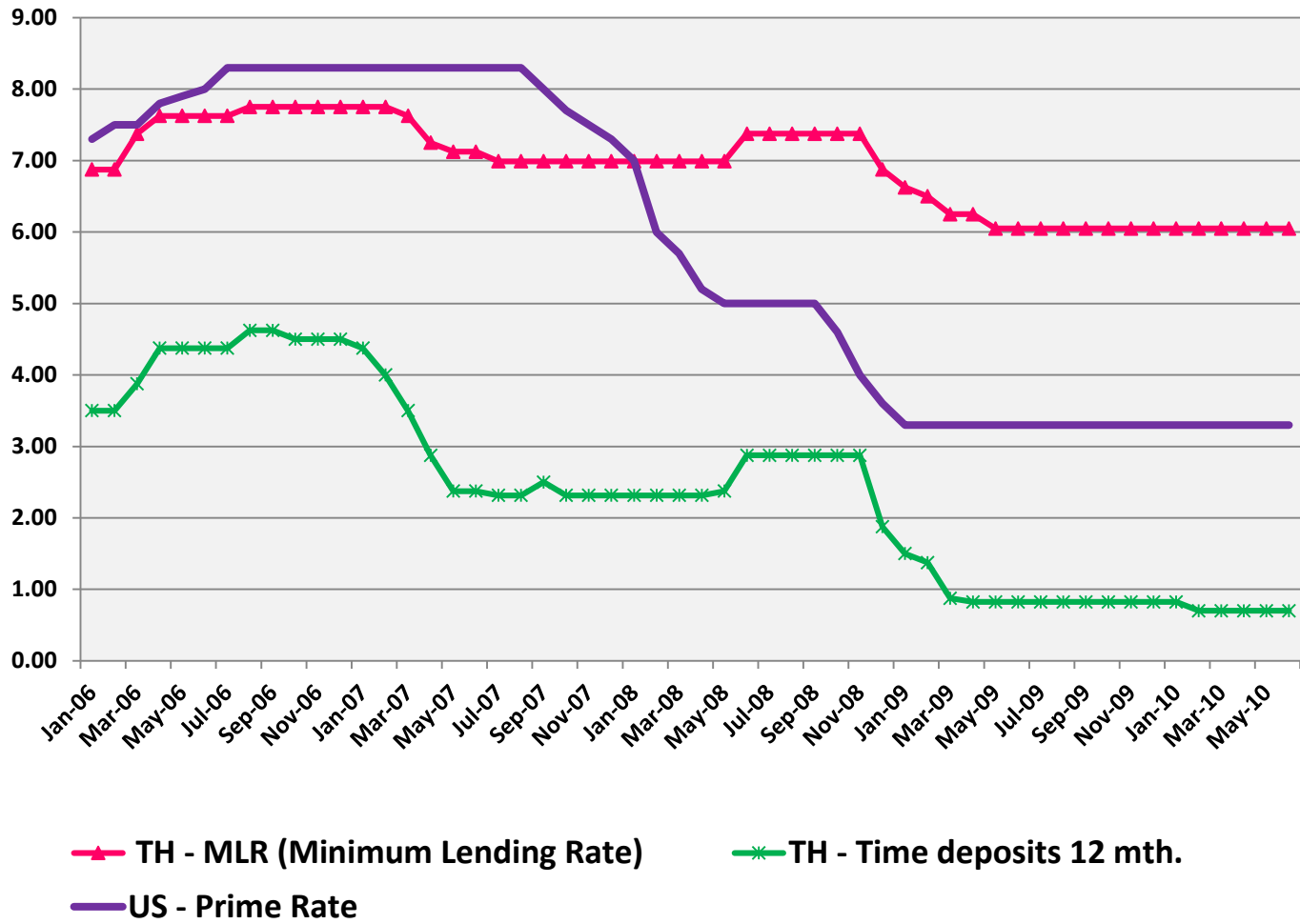
# Impact on Thai Commercial banks

- Although the US financial crisis has led to a world wide recession and also affected other financial markets elsewhere, Thailand's financial sector remained stable.
- Thai banks have **minimal** exposure to the US ***toxic assets*** (in the form of CDO's).

# What you don't know may not hurt you

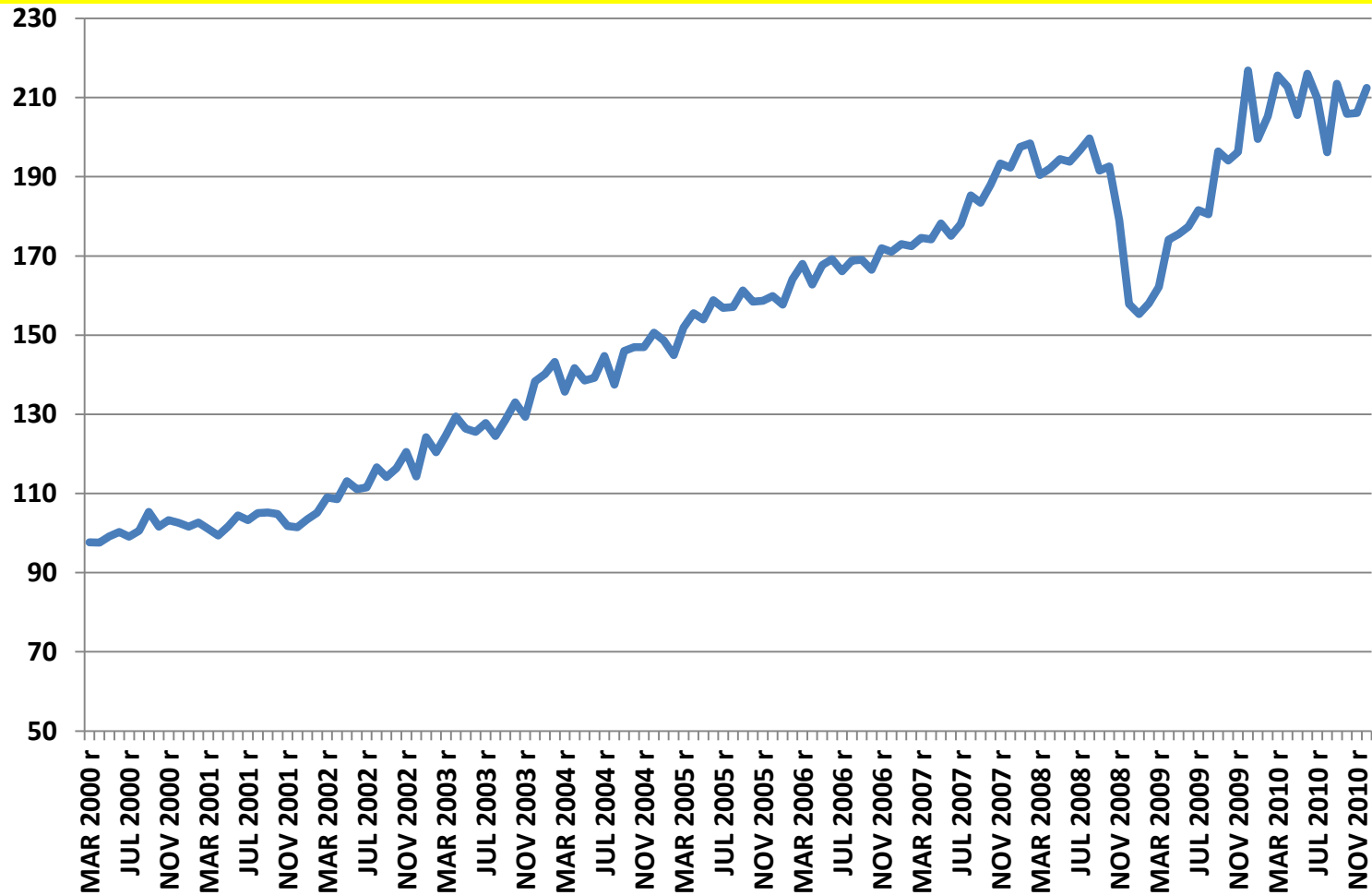
- Some banks like Bangkok Bank, BankThai , Krung Thai Bank and Bank of Ayudhya purchased CDO's in the amounts of US\$101 million , US\$ 260 million, US\$160 million and US\$ 85 million respectively.
- US banks have limited presence in Thailand where only Citibank and JP Morgan Chase have full branch operations.
- These foreign banks have less than one percent share of total bank loans in Thailand in 2007.

## Interest rates during the global financial crisis



# Collapse of manufacturing output

## Manufacturing Production Index (MPI)



# Rising unemployment

- **Higher unemployment:** With lower demand, manufacturing activities slowed resulting in a number of companies to reduce or shut-down their operations.
- It was *estimated* that, in 2009, in the worst case, there will be 1.5 million unemployed in Thailand or 2.5% of the total workforce, an increase from 1.5% from previous year.

# 3. The V-shaped recovery in Asia

- Asia's emerging economies probably grew at an average annualized rate of over 10% in the **second** quarter 2009, while America's GDP fell by 1%.
- The second-quarter GDP figures showed an impressive bounce.
- Comparing the second quarter with the first at an annualized rate, China's GDP grew by 15%, South Korea's by almost 10%, Singapore's soared by 21% and Indonesia's managed a respectable 5%.

- Average growth figures conceal big differences within Asia over the past year.
- China, India and Indonesia were among **the few** economies in the world that continued to expand throughout the global downturn (though China's virtually stalled and entered a new normal growth).
- But the smaller, more open Asian economies were badly hit.
- Between September and March 2009 real GDP fell by an average annualized rate of 13% in Hong Kong, Malaysia, South Korea, Singapore, Taiwan and Thailand.

# On the rebound

Aug 13th 2009

From The Economist print edition

## Back on track

1

Industrial production, Jan 2006=100



Sources: Barclays Capital; Thomson Reuters

# Widening Gap

- In 2009 as a whole, Asia grew by at least 5%, while the G7 economies contracted by 3.5%
- The growth gap between the two had never been wider.
- How have these export-dependent economies managed to decouple from the developed world?
- How did the recovery sustain?

# Monetary policy challenge

- How to sustain a robust recovery without blowing up the bubbles?
- There are growing concerns that a flood of liquidity is fuelling asset-price bubbles, which could destabilize economies when they burst.
- That is why the Fed is thinking about normalization of the interest rate policy.

# Hyman Philip Minsky

(1919 – 1996)

- Hyman Minsky wrote in 1974, "is that the financial system swings between robustness and fragility and these swings are an integral part of the process that generates business cycles
- The term Minsky Moment was coined by Paul McCulley in 1998, to describe the 1998 Russian financial crisis.

# Hyman Philip Minsky

## (1919 – 1996)

- “Bankers, traders, and other financiers periodically played the role of arsonists, setting the entire economy ablaze”.
- Minsky opposed the deregulation that characterized the 1980s.
- Applying Minsky’s theory of financial instability to the subprime mortgage crisis

## 5. Hyman Minsky

*Long periods of economic stability **trick** people into taking on more risk, borrow excessively and overpay for assets*

### **Five stages in Minsky model**

1. **Displacement**: investors are excited about significant change in economic policy, an invention such as internet, oil discovery, digital technology, fintech, digital finance, and robotics.
2. **Boom**: investors borrow excessively for expected high returns (Tulip mania)

ICO stands for Investor Caution Obligatory  
*Regulators signal alarm at a frenzied investment craze*

- An “initial coin offering” or ICO lets investors buy an entry in a computer ledger issued by a startup. In return, they do not get equity in the company, but the wild hope that the “coin” will eventually rise in value.
- ICOs have already raised more than \$2bn in total. But some regulators say they are so risky as to be illegal.
- All but the most tech-savvy should assume that ICO means “It’s Completely Off-limits”

# From euphoria to panic

3. *Euphoria*: excessive lending and credit extension to ever more untrustworthy borrowers and the creation of many types of financial instruments.
4. *Profit taking*: smart traders start to cash in their profits at the top of the market.
5. *Panic*

## *5. Panic*

- 1. Uncertainty occurs;**
- 2. Property & stock prices fall;**
- 3. Liquidity in financial markets drops;**
- 4. Value of securities sinks sharply,**
- 5. Purchasing power disappears,**
- 6. Unemployment rises.**
- 7. Then came Ponzi borrowers**

# Ponzi borrowers

- ★ During the panic stage, many people become *Ponzi* borrowers,
- ★ They are the borrowers who can repay neither the interest nor the original debt.
- ★ They rely entirely on rising asset prices to allow them to keep on refinancing their debt.
- ★ They borrow more in order to pay old debts.
- ★ Substituting new debts for old debts.

# Believe in the appreciation of the value of the asset

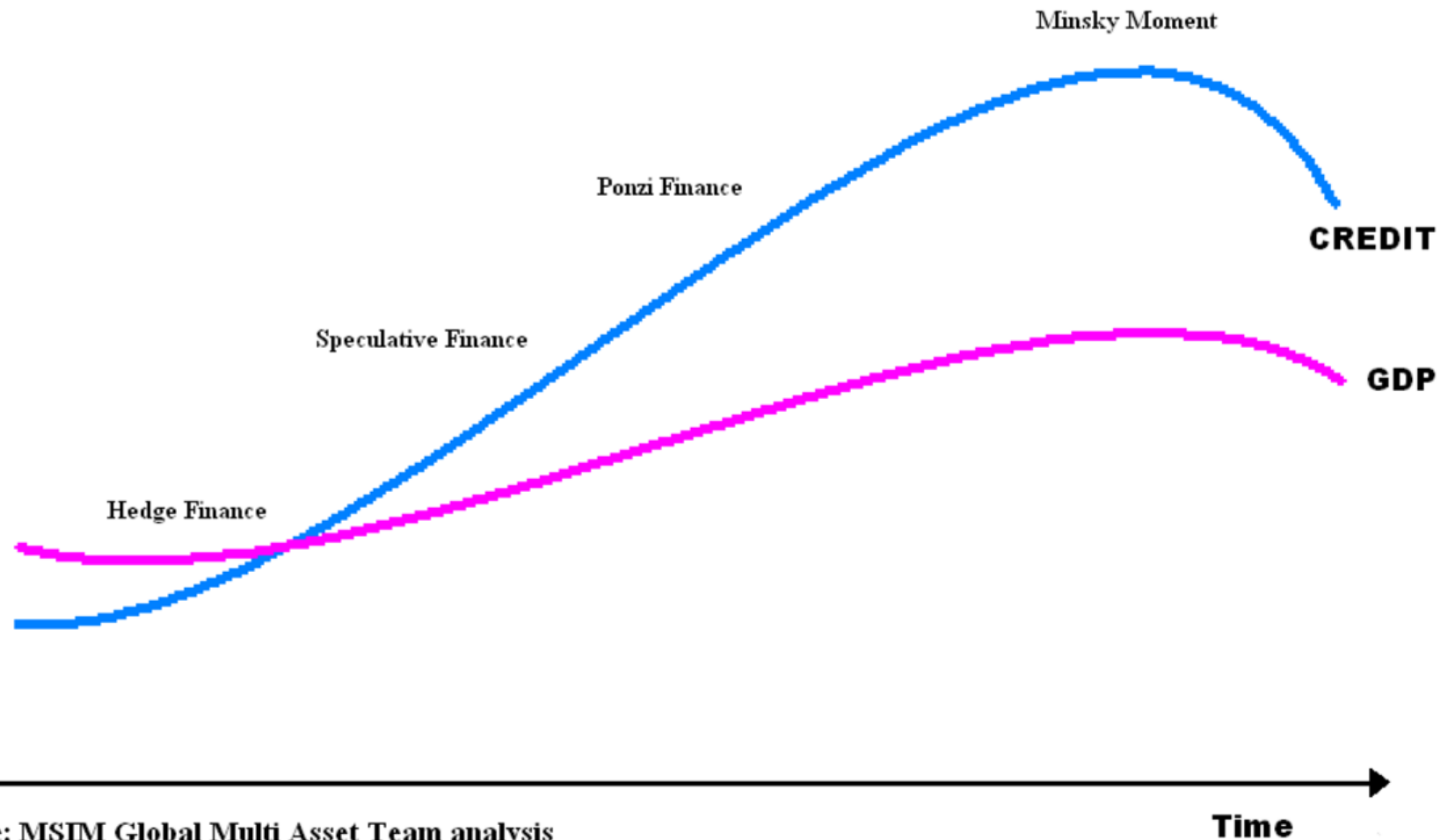
- The "Ponzi borrower" (named for Charles Ponzi) borrows based on the belief that the appreciation of the value of the asset *will be sufficient to refinance the debt* but could not make sufficient payments on interest or principal with the cash flow from investments;
- Only the appreciating asset value can keep the Ponzi borrower afloat.

# Minsky Moment

- ★ All 5 stages eventually lead to **Minsky moment** - the time when '**over-indebted investors**' are forced to sell their securities even the good ones in order to pay off the mountains of debt they took on to acquire those investments, resulting in sharp declines in financial markets, lack of liquidity and a call for government's help
- ★ This is exactly what happened to the U.S. economy during the sub-prime crisis


A **Minsky moment** is a sudden major collapse of asset values which is part of the credit cycle or business cycle. Such moments occur because long periods of prosperity and increasing value of investments lead to increasing speculation using borrowed money

*Stylized "Minsky Cycle"*



# Movies to watch

- **Margin calls** (2011)
- An entangling thriller involving the key players at an investment firm during one perilous 24-hour period in the early stages of the 2008 financial crisis.



KEVIN SPACEY  
PAUL BETTANY  
JEREMY IRONS  
ZACHARY QUINTO  
PENN BADGLEY  
SIMON BAKER  
MARY McDONNELL  
WITH DEMI MOORE  
AND STANLEY TUCCI

# MARGIN CALL

MYRAD PICTURES • BENARDIA PICTURES PRESENTS BEFORE THE DAWN PRESENTS A WASHINGTON SQUARE FILMS SIKONNET CAPITAL PARTNERS PRESENTS AN ENTITLED ENTERTAINMENT  
KEVIN SPACEY PAUL BETTANY JEREMY IRONS ZACHARY QUINTO SIMON BAKER PENN BADGLEY MARY McDONNELL WITH DEMI MOORE AND STANLEY TUCCI "MARGIN CALL"  
BY BERNARDO TELSEY WITH TONY LITTLE CARNELED JUDY CAROLINE DUNCAN WITH JOHN PANG AND PETE BLANDHAR JOY NATHAN JARSON JOHN FRANK DENMARK  
AND OSCAR LEON WITH ANNA GEYR JUDICIAL CLAWES LAURA ROSTER JOHN RICHARD BLUM JOHN D'AMICO FRANKY MANN ANTHONY GILLAS MICHAEL GREGG BOSS SANDRINA  
AND THE JENCKES WITH ROBERT DYSEN HARRMAN AND CUREY MORCA WITH MICHAEL BENARDIA NEAL OGDON AND ZACHARY QUINTO "GUY J. CHAMBER"



MYRAD



OSCARs 2016 | By MEKADO MURPHY | 3:52



# Anatomy of a Scene | 'The Big Short'

# The big short (2015)

- Four denizens in the world of high-finance predict the credit and housing bubble collapse of the mid-2000s, and decide to take on the big banks for their greed and lack of foresight.
- Miniseminars on the finer points of [credit-default swaps](#) and [collateralized debt obligations](#).
- The story swerves and swings from executive suites and conference rooms to hectic Manhattan streets and desolate Florida subdivisions.

# A Three-hour Makeup Class

- Monday: 11:00-14:00
- September 25
- Lecture: A12-A13 (Issues in agriculture and industrial competitiveness)

# Conclusions

- Although the 1997 and 2009 crises are different, some Asian countries were able to rebound in a V-shaped recovery.
- Asian countries have learned their lessons well from the 1997 financial meltdown.
- The global financial crisis in 2009 affected Thailand indirectly through export shortfall.
- Fiscal policies can be an effective means of influencing government popularity (e.g. Democratic Party of Japan), but its sustainability is in question.

# Review questions

- “Both financial crises in Thailand and the US stemmed from similar causes” State whether you agree or disagree with the above statement. Give brief reasons.
- Will Thailand soon experience the Minsky moment?