ECON 421: Business Fluctuations

Spring 2015
Tu 6:00PM–9:00PM
Section 102

Created by
Richard Schwinn, Ph.D.

Based on
Macroeconomics, Blanchard and Johnson [2011]

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

What are the origins of economic success?

Hal Varian

- Author of **the** microeconomics textbook for graduate students.
- Chief Economist at Google

You want to have a scarce factor of production that is complementary to something that is ubiquitous and cheap.

Consider your university cohort. When you graduate,

- macroeconomic intuition will be rare among your peers
- your insights will serve as a valuable input to your job choice
- you'll find that the opportunity to apply your insights is everywhere.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Gross Domestic Product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

$$Y = C + I + G + NX$$

- C is the total spending by households on consumable goods and services.
- I is the total spending on goods intended to increase productive capacity.
- G is all spending on the goods and services purchased by govt at the federal, state, and local levels.
- $NX = exports - imports$ where $exports$ represent foreign spending on the domestic goods and services while $imports$ are the portions of C, I, and G that are spent on goods and services produced abroad.

Consumer Price Index (CPI) measures the typical consumer's cost of living.

$$CPI_t = \frac{basket\ cost\ in\ year\ t}{basket\ cost\ in\ base\ year} * 100$$

and inflation is simply measured using

$$\pi_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$$

Consumer Price Index (CPI) measures the typical consumer's cost of living.

$$CPI_t = \frac{basket\ cost\ in\ year\ t}{basket\ cost\ in\ base\ year} * 100$$

and inflation is simply measured using

$$\pi_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$$

Consumer Price Index (CPI) measures the typical consumer's cost of living.

$$CPI_t = \frac{basket\ cost\ in\ year\ t}{basket\ cost\ in\ base\ year} * 100$$

and inflation is simply measured using

$$\pi_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$$

A Bank's Balance Sheet

Assets		Liabilities	
Reserves	$200	Deposits	$800
Loans	$700	Debt	$150
Securities	$100	Capital	$50

What is this bank's leverage ratio?

$$Leverage\ Ratio = \frac{Assets}{Capital}$$

A Bank's Balance Sheet

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$100	Capital	\$50

What is this bank's leverage ratio?

$$Leverage\ Ratio = \frac{Assets}{Capital}$$

A Bank's Balance Sheet

Assets		Liabilities	
Reserves	$200	Deposits	$800
Loans	$700	Debt	$150
Securities	$100	Capital	$50

What is this bank's leverage ratio?

$$Leverage\ Ratio = \frac{Assets}{Capital}$$

A Tour of the World

- U.S. Housing prices, which had doubled since 2000, started to decline in 2007.
- Mortgage loans which had been given out during the earlier expansion were of poor quality causing many borrowers to increasingly be unable to make mortgage payments. *Why?*
- Banks that mortgaged the loans often bundled, packaged and repackaged the loans into new securities and then sold them to other banks and investors.
- The holdings of securities, instead of mortgages by banks, created a complex understanding of the value of the asset making it impossible to appraise.

- U.S. Housing prices, which had doubled since 2000, started to decline in 2007.
- Mortgage loans which had been given out during the earlier expansion were of poor quality causing many borrowers to increasingly be unable to make mortgage payments. *Why?*
- Banks that mortgaged the loans often bundled, packaged and repackaged the loans into new securities and then sold them to other banks and investors.
- The holdings of securities, instead of mortgages by banks, created a complex understanding of the value of the asset making it impossible to appraise.

- U.S. Housing prices, which had doubled since 2000, started to decline in 2007.
- Mortgage loans which had been given out during the earlier expansion were of poor quality causing many borrowers to increasingly be unable to make mortgage payments. *Why?*
- Banks that mortgaged the loans often bundled, packaged and repackaged the loans into new securities and then sold them to other banks and investors.
- The holdings of securities, instead of mortgages by banks, created a complex understanding of the value of the asset making it impossible to appraise.

- U.S. Housing prices, which had doubled since 2000, started to decline in 2007.
- Mortgage loans which had been given out during the earlier expansion were of poor quality causing many borrowers to increasingly be unable to make mortgage payments. *Why?*
- Banks that mortgaged the loans often bundled, packaged and repackaged the loans into new securities and then sold them to other banks and investors.
- The holdings of securities, instead of mortgages by banks, created a complex understanding of the value of the asset making it impossible to appraise.

- U.S. Housing prices, which had doubled since 2000, started to decline in 2007.
- Mortgage loans which had been given out during the earlier expansion were of poor quality causing many borrowers to increasingly be unable to make mortgage payments. *Why?*
- Banks that mortgaged the loans often bundled, packaged and repackaged the loans into new securities and then sold them to other banks and investors.
- The holdings of securities, instead of mortgages by banks, created a complex understanding of the value of the asset making it impossible to appraise.

- September 15, 2008, a major bank, Lehman Brothers, went bankrupt due to a decline in the value of its securities.
- Consider:

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$100	Capital	\$50

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$25	Capital	< 0

- September 15, 2008, a major bank, Lehman Brothers, went bankrupt due to a decline in the value of its securities.
- Consider:

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$100	Capital	\$50

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$25	Capital	< 0

- September 15, 2008, a major bank, Lehman Brothers, went bankrupt due to a decline in the value of its securities.
- Consider:

Assets		Liabilities	
Reserves	$200	Deposits	$800
Loans	$700	Debt	$150
Securities	$100	Capital	$50

Assets		Liabilities	
Reserves	$200	Deposits	$800
Loans	$700	Debt	$150
Securities	$25	Capital	< 0

- September 15, 2008, a major bank, Lehman Brothers, went bankrupt due to a decline in the value of its securities.
- Consider:

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$100	Capital	\$50

Assets		Liabilities	
Reserves	\$200	Deposits	\$800
Loans	\$700	Debt	\$150
Securities	\$25	Capital	< 0

- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

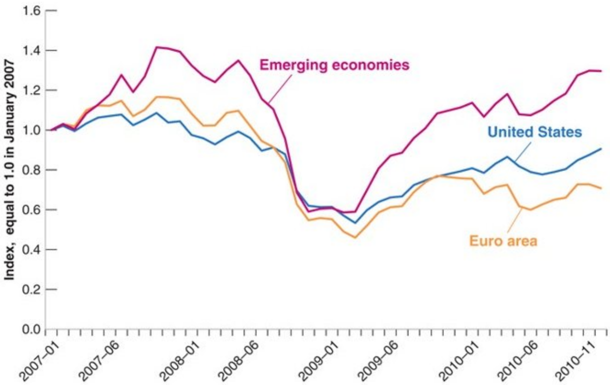
- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

- The complexity of the value of the securities and the quality of the assets made banks reluctant to lend to each other and within weeks the whole financial system was in jeopardy.
- The value of many banks assets indirectly relied on the assumption that mortgages would be paid.
- Inability to assess the values of mortgage backed securities (MBSs), which were often comprised of 1000s of mortgages, meant that banks didn't have detailed information regarding the value of their securities.
- This led to a fall in demand for MBSs which made primary lenders offer fewer loans to home buyers. Decreasing the demand for housing.
- Businesses' concerns over sales and continuous decline in housing prices caused a sharp cut back on investment along a decline in the building of new homes.
- Consumers increased their savings in expectation of recession and partially due to a collapse in stock prices.

- The figure shows how financial crisis became an economic crisis

Source: Haver Analytics USA (S111ACD), Eurogroup (S023ACD), all emerging markets (S200ACD), all monthly averages)

- The figure shows how financial crisis became an economic crisis



Source: Haver Analytics USA (S111ACD), Eurogroup (S023ACD), all emerging markets (S200ACD), all monthly averages)

The Crisis

- Despite strong actions by the Fed, to cut the interest rate, and the U.S. government which cut taxes and increased government spending, demand and output continued to decline in the U.S.
- A decline in the U.S. importing goods from abroad along with U.S. banks needing repatriate funds from other countries moved a U.S. crisis into a world crisis.
- By 2009, average growth in advanced economies was -3.7%, by far the lowest annual growth rate since the Great Depression.
- Growth in emerging and developing economies remained positive but was nearly 4 percentage points lower than the 2000-2007 average.

The Crisis

- Despite strong actions by the Fed, to cut the interest rate, and the U.S. government which cut taxes and increased government spending, demand and output continued to decline in the U.S.
- A decline in the U.S. importing goods from abroad along with U.S. banks needing repatriate funds from other countries moved a U.S. crisis into a world crisis.
- By 2009, average growth in advanced economies was -3.7%, by far the lowest annual growth rate since the Great Depression.
- Growth in emerging and developing economies remained positive but was nearly 4 percentage points lower than the 2000-2007 average.

The Crisis

- Despite strong actions by the Fed, to cut the interest rate, and the U.S. government which cut taxes and increased government spending, demand and output continued to decline in the U.S.
- A decline in the U.S. importing goods from abroad along with U.S. banks needing repatriate funds from other countries moved a U.S. crisis into a world crisis.
- By 2009, average growth in advanced economies was -3.7%, by far the lowest annual growth rate since the Great Depression.
- Growth in emerging and developing economies remained positive but was nearly 4 percentage points lower than the 2000-2007 average.

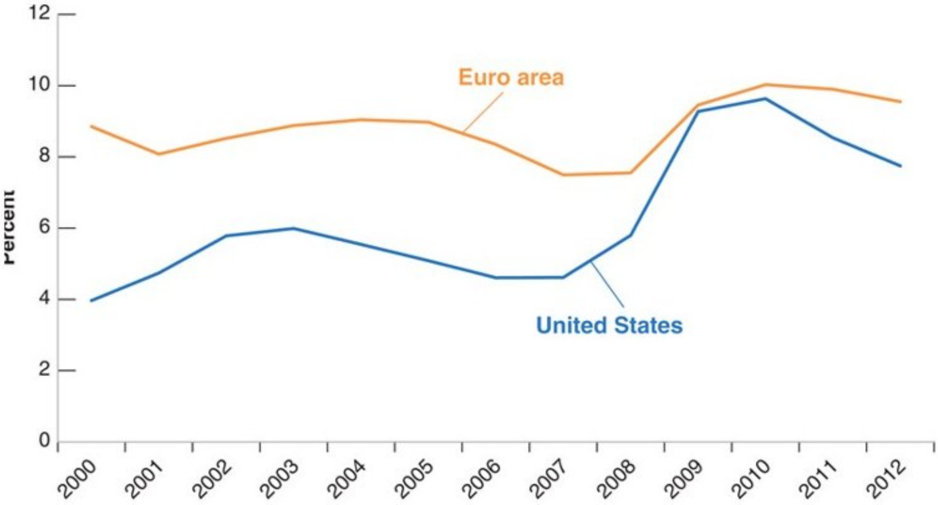
The Crisis

- Despite strong actions by the Fed, to cut the interest rate, and the U.S. government which cut taxes and increased government spending, demand and output continued to decline in the U.S.
- A decline in the U.S. importing goods from abroad along with U.S. banks needing repatriate funds from other countries moved a U.S. crisis into a world crisis.
- By 2009, average growth in advanced economies was -3.7%, by far the lowest annual growth rate since the Great Depression.
- Growth in emerging and developing economies remained positive but was nearly 4 percentage points lower than the 2000-2007 average.

The Crisis

- Despite strong actions by the Fed, to cut the interest rate, and the U.S. government which cut taxes and increased government spending, demand and output continued to decline in the U.S.
- A decline in the U.S. importing goods from abroad along with U.S. banks needing repatriate funds from other countries moved a U.S. crisis into a world crisis.
- By 2009, average growth in advanced economies was -3.7%, by far the lowest annual growth rate since the Great Depression.
- Growth in emerging and developing economies remained positive but was nearly 4 percentage points lower than the 2000-2007 average.

Unemployment



Excellent References on the 2008 Crisis

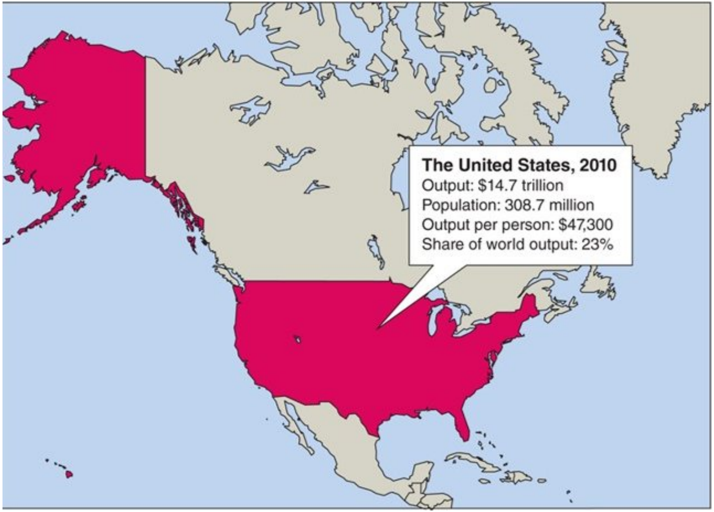
- *The Big Short: Inside the Doomsday Machine* by the Author of *Moneyball*, Michael Lewis.
- *The Black Swan* by Nassim Taleb

Excellent References on the 2008 Crisis

- *The Big Short: Inside the Doomsday Machine* by the Author of *Moneyball*, Michael Lewis.
- *The Black Swan* by Nassim Taleb

Excellent References on the 2008 Crisis

- *The Big Short: Inside the Doomsday Machine* by the Author of *Moneyball*, Michael Lewis.
- *The Black Swan* by Nassim Taleb


The United States, 2010
Output: $14.7 trillion
Population: 308.7 million
Output per person: $47,300
Share of world output: 23%

- In the United States the rate of growth of the economy was 2.6% which is fairly high for an advanced country.
- On average, the unemployment rate and the inflation rate was lower in 2007 than over the period since 1980.
- During the crisis output did not grow in 2008 and declined by 3.5% in 2009.
- The high unemployment rate along with the very large budget deficit in the United States tends to be the preeminent issues facing the United States.

- In the United States the rate of growth of the economy was 2.6% which is fairly high for an advanced country.
- On average, the unemployment rate and the inflation rate was lower in 2007 than over the period since 1980.
- During the crisis output did not grow in 2008 and declined by 3.5% in 2009.
- The high unemployment rate along with the very large budget deficit in the United States tends to be the preeminent issues facing the United States.

- In the United States the rate of growth of the economy was 2.6% which is fairly high for an advanced country.
- On average, the unemployment rate and the inflation rate was lower in 2007 than over the period since 1980.
- During the crisis output did not grow in 2008 and declined by 3.5% in 2009.
- The high unemployment rate along with the very large budget deficit in the United States tends to be the preeminent issues facing the United States.

- In the United States the rate of growth of the economy was 2.6% which is fairly high for an advanced country.
- On average, the unemployment rate and the inflation rate was lower in 2007 than over the period since 1980.
- During the crisis output did not grow in 2008 and declined by 3.5% in 2009.
- The high unemployment rate along with the very large budget deficit in the United States tends to be the preeminent issues facing the United States.

- In the United States the rate of growth of the economy was 2.6% which is fairly high for an advanced country.
- On average, the unemployment rate and the inflation rate was lower in 2007 than over the period since 1980.
- During the crisis output did not grow in 2008 and declined by 3.5% in 2009.
- The high unemployment rate along with the very large budget deficit in the United States tends to be the preeminent issues facing the United States.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The 1990s - After an increase in deficits due to the 1990-1991 recession, the rest of the decade was associated with a steady improvement in the budget.
- The Early 2000s - The budget deficit returned due to Bush administration convincing Congress to cut taxes with the goal of spurring growth.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The 1990s - After an increase in deficits due to the 1990-1991 recession, the rest of the decade was associated with a steady improvement in the budget.
- The Early 2000s - The budget deficit returned due to Bush administration convincing Congress to cut taxes with the goal of spurring growth.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The 1990s - After an increase in deficits due to the 1990-1991 recession, the rest of the decade was associated with a steady improvement in the budget.
- The Early 2000s - The budget deficit returned due to Bush administration convincing Congress to cut taxes with the goal of spurring growth.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The 1990s - After an increase in deficits due to the 1990-1991 recession, the rest of the decade was associated with a steady improvement in the budget.
- The Early 2000s - The budget deficit returned due to Bush administration convincing Congress to cut taxes with the goal of spurring growth.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The Crisis - The budget deficit in 2007 was 1.7% of GDP increased to 9% of the GDP to 2010 due to:
  - Lower output growth which has led to lower government revenues.
  - A decline in Federal revenues, from 18.9% of GDP in 2007, to 16.2% of GDP in 2010.
  - Increase in Federal spending, from 20.6% in 2007, to 25.3% in 2010.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The Crisis - The budget deficit in 2007 was 1.7% of GDP increased to 9% of the GDP to 2010 due to:
  - Lower output growth which has led to lower government revenues.
  - A decline in Federal revenues, from 18.9% of GDP in 2007, to 16.2% of GDP in 2010.
  - Increase in Federal spending, from 20.6% in 2007, to 25.3% in 2010.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The Crisis - The budget deficit in 2007 was 1.7% of GDP increased to 9% of the GDP to 2010 due to:
  - Lower output growth which has led to lower government revenues.
  - A decline in Federal revenues, from 18.9% of GDP in 2007, to 16.2% of GDP in 2010.
  - Increase in Federal spending, from 20.6% in 2007, to 25.3% in 2010.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

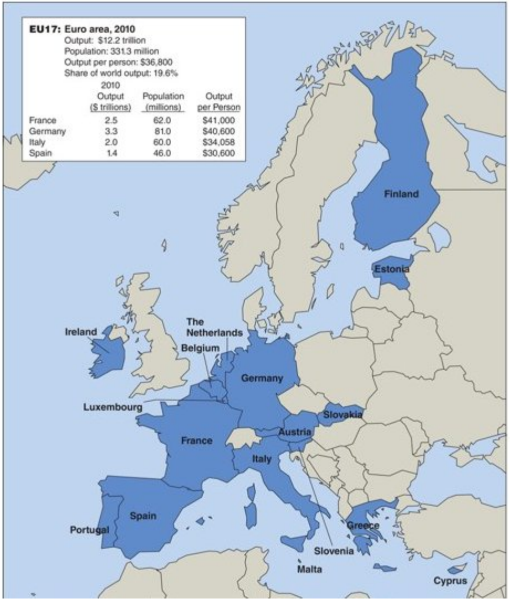
- The Crisis - The budget deficit in 2007 was 1.7% of GDP increased to 9% of the GDP to 2010 due to:
  - Lower output growth which has led to lower government revenues.
  - A decline in Federal revenues, from 18.9% of GDP in 2007, to 16.2% of GDP in 2010.
  - Increase in Federal spending, from 20.6% in 2007, to 25.3% in 2010.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	3.0	2.6	0.0	–3.5	3.0	1.5	1.8
Unemployment rate	6.5	5.0	5.8	9.3	9.6	9.1	9.0
Inflation rate	4.2	2.8	3.8	–0.3	1.7	2.9	1.2

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- The Crisis - The budget deficit in 2007 was 1.7% of GDP increased to 9% of the GDP to 2010 due to:
  - Lower output growth which has led to lower government revenues.
  - A decline in Federal revenues, from 18.9% of GDP in 2007, to 16.2% of GDP in 2010.
  - Increase in Federal spending, from 20.6% in 2007, to 25.3% in 2010.


EU17: Euro area, 2010
Output: $12.2 trillion
Population: 331.3 million
Output per person: $36,800
Share of world output: 19.6%
2010 Output ($ trillions) | Population (millions) | Output per Person
France 2.5 62.0 $41,000
Germany 3.3 81.0 $40,600
Italy 2.0 60.0 $34,058
Spain 1.4 46.0 $30,600
Finland
Estonia
Ireland
The Netherlands
Belgium
Germany
Luxembourg
Slovakia
Austria
France
Italy
Spain
Portugal
Greece
Slovenia
Malta
Cyprus

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	2.2	2.2	0.4	–4.2	1.8	1.6	1.1
Unemployment rate	9.6	8.5	7.6	9.5	10.1	9.9	9.9
Inflation rate	5.2	2.3	3.2	0.3	1.6	2.5	1.5

Source: World Economic Outlook database, September 2011

- During the 2000-2007 time period right before the crisis, the Euro Area experienced positive but relatively low growth.
- The Euro Area also endured low inflation and continued high unemployment. The crisis caused growth to decline to negative 4.2% by 2009 and the unemployment rate to reach 10.1% by 2010.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	2.2	2.2	0.4	–4.2	1.8	1.6	1.1
Unemployment rate	9.6	8.5	7.6	9.5	10.1	9.9	9.9
Inflation rate	5.2	2.3	3.2	0.3	1.6	2.5	1.5

Source: *World Economic Outlook* database, September 2011

- During the 2000-2007 time period right before the crisis, the Euro Area experienced positive but relatively low growth.
- The Euro Area also endured low inflation and continued high unemployment. The crisis caused growth to decline to negative 4.2% by 2009 and the unemployment rate to reach 10.1% by 2010.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	2.2	2.2	0.4	–4.2	1.8	1.6	1.1
Unemployment rate	9.6	8.5	7.6	9.5	10.1	9.9	9.9
Inflation rate	5.2	2.3	3.2	0.3	1.6	2.5	1.5

Source: World Economic Outlook database, September 2011

- During the 2000-2007 time period right before the crisis, the Euro Area experienced positive but relatively low growth.
- The Euro Area also endured low inflation and continued high unemployment. The crisis caused growth to decline to negative 4.2% by 2009 and the unemployment rate to reach 10.1% by 2010.

The issues facing the Euro area are:

- How to reduce unemployment.
- How to function effectively as a common currency area.
- The debate over remedies for high unemployment in Europe is characterized by two polar views.
  - According to the first view, high unemployment is the result of tight monetary policy by the European Central Bank. The suggested remedy is lower interest rates.
  - According to the second view, high unemployment is a result of rigid labor market institutions, particularly with respect to worker protection. Thus, the suggested remedy is to restructure labor market institutionsin fact to model them after the institutions in the United States.

The issues facing the Euro area are:

- How to reduce unemployment.
- How to function effectively as a common currency area.
- The debate over remedies for high unemployment in Europe is characterized by two polar views.
  - According to the first view, high unemployment is the result of tight monetary policy by the European Central Bank. The suggested remedy is lower interest rates.
  - According to the second view, high unemployment is a result of rigid labor market institutions, particularly with respect to worker protection. Thus, the suggested remedy is to restructure labor market institutionsin fact to model them after the institutions in the United States.

The issues facing the Euro area are:

- How to reduce unemployment.
- How to function effectively as a common currency area.
- The debate over remedies for high unemployment in Europe is characterized by two polar views.
  - According to the first view, high unemployment is the result of tight monetary policy by the European Central Bank. The suggested remedy is lower interest rates.
  - According to the second view, high unemployment is a result of rigid labor market institutions, particularly with respect to worker protection. Thus, the suggested remedy is to restructure labor market institutionsin fact to model them after the institutions in the United States.

The issues facing the Euro area are:

- How to reduce unemployment.
- How to function effectively as a common currency area.
- The debate over remedies for high unemployment in Europe is characterized by two polar views.
  - According to the first view, high unemployment is the result of tight monetary policy by the European Central Bank. The suggested remedy is lower interest rates.
  - According to the second view, high unemployment is a result of rigid labor market institutions, particularly with respect to worker protection. Thus, the suggested remedy is to restructure labor market institutionsin fact to model them after the institutions in the United States.

The issues facing the Euro area are:

- How to reduce unemployment.
- How to function effectively as a common currency area.
- The debate over remedies for high unemployment in Europe is characterized by two polar views.
  - According to the first view, high unemployment is the result of tight monetary policy by the European Central Bank. The suggested remedy is lower interest rates.
  - According to the second view, high unemployment is a result of rigid labor market institutions, particularly with respect to worker protection. Thus, the suggested remedy is to restructure labor market institutionsin fact to model them after the institutions in the United States.

The issues facing the Euro area are:

- How to reduce unemployment.
- How to function effectively as a common currency area.
- The debate over remedies for high unemployment in Europe is characterized by two polar views.
  - According to the first view, high unemployment is the result of tight monetary policy by the European Central Bank. The suggested remedy is lower interest rates.
  - According to the second view, high unemployment is a result of rigid labor market institutions, particularly with respect to worker protection. Thus, the suggested remedy is to restructure labor market institutionsin fact to model them after the institutions in the United States.

The Euro offers political and economic benefits.

- Politically, the adoption of a single currency provides a strong symbol of European unification after the wars of the 20th century and before.
- Economically, the Euro has eliminated exchange rate uncertainty among participating countries, and thus may facilitate trade and contribute to the economic development of Europe as, perhaps, the largest economic power in the world.
- On the other hand, the adoption of a single currency has eliminated the discretion of each country individually to use monetary policy to stimulate output and reduce unemployment.
- **Eurozone countries have a common monetary policy. Creates the possibility of policy conflicts when some countries are in recession and others are in an economic boom. Consider Greece.**

The Euro offers political and economic benefits.

- Politically, the adoption of a single currency provides a strong symbol of European unification after the wars of the 20th century and before.
- Economically, the Euro has eliminated exchange rate uncertainty among participating countries, and thus may facilitate trade and contribute to the economic development of Europe as, perhaps, the largest economic power in the world.
- On the other hand, the adoption of a single currency has eliminated the discretion of each country individually to use monetary policy to stimulate output and reduce unemployment.
- **Eurozone countries have a common monetary policy. Creates the possibility of policy conflicts when some countries are in recession and others are in an economic boom. Consider Greece.**

The Euro offers political and economic benefits.

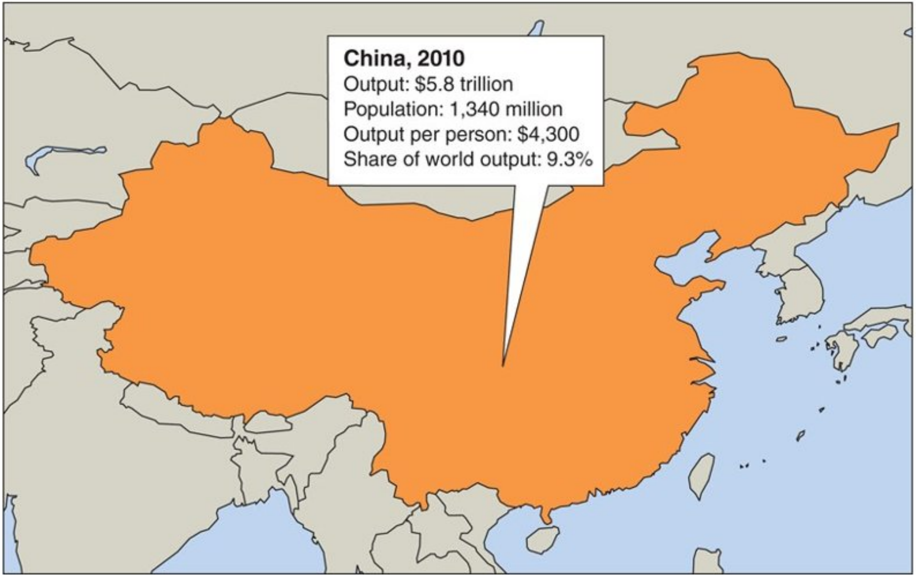
- Politically, the adoption of a single currency provides a strong symbol of European unification after the wars of the 20th century and before.
- Economically, the Euro has eliminated exchange rate uncertainty among participating countries, and thus may facilitate trade and contribute to the economic development of Europe as, perhaps, the largest economic power in the world.
- On the other hand, the adoption of a single currency has eliminated the discretion of each country individually to use monetary policy to stimulate output and reduce unemployment.
- **Eurozone countries have a common monetary policy. Creates the possibility of policy conflicts when some countries are in recession and others are in an economic boom. Consider Greece.**

The Euro offers political and economic benefits.

- Politically, the adoption of a single currency provides a strong symbol of European unification after the wars of the 20th century and before.
- Economically, the Euro has eliminated exchange rate uncertainty among participating countries, and thus may facilitate trade and contribute to the economic development of Europe as, perhaps, the largest economic power in the world.
- On the other hand, the adoption of a single currency has eliminated the discretion of each country individually to use monetary policy to stimulate output and reduce unemployment.
- Eurozone countries have a common monetary policy. Creates the possibility of policy conflicts when some countries are in recession and others are in an economic boom. Consider Greece.

The Euro offers political and economic benefits.

- Politically, the adoption of a single currency provides a strong symbol of European unification after the wars of the 20th century and before.
- Economically, the Euro has eliminated exchange rate uncertainty among participating countries, and thus may facilitate trade and contribute to the economic development of Europe as, perhaps, the largest economic power in the world.
- On the other hand, the adoption of a single currency has eliminated the discretion of each country individually to use monetary policy to stimulate output and reduce unemployment.
- **Eurozone countries have a common monetary policy. Creates the possibility of policy conflicts when some countries are in recession and others are in an economic boom. Consider Greece.**


China, 2010
Output: $5.8 trillion
Population: 1,340 million
Output per person: $4,300
Share of world output: 9.3%

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- Since 1980, China's output has grown at roughly 10% a year.
- The crisis has had little effect on the Chinese economy.
- Although official Chinese statistics are not as accurate as in richer countries, research suggests that there is no clear bias in the numbers.
- **China's high growth is a fact**, and not an artifact of poor statistics.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- Since 1980, China's output has grown at roughly 10% a year.
- The crisis has had little effect on the Chinese economy.
- Although official Chinese statistics are not as accurate as in richer countries, research suggests that there is no clear bias in the numbers.
- **China's high growth is a fact**, and not an artifact of poor statistics.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- Since 1980, China's output has grown at roughly 10% a year.
- The crisis has had little effect on the Chinese economy.
- Although official Chinese statistics are not as accurate as in richer countries, research suggests that there is no clear bias in the numbers.
- **China's high growth is a fact**, and not an artifact of poor statistics.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- Since 1980, China's output has grown at roughly 10% a year.
- The crisis has had little effect on the Chinese economy.
- Although official Chinese statistics are not as accurate as in richer countries, research suggests that there is no clear bias in the numbers.
- **China's high growth is a fact**, and not an artifact of poor statistics.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- Since 1980, China's output has grown at roughly 10% a year.
- The crisis has had little effect on the Chinese economy.
- Although official Chinese statistics are not as accurate as in richer countries, research suggests that there is no clear bias in the numbers.
- **China's high growth is a fact**, and not an artifact of poor statistics.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: *World Economic Outlook* database, September 2011

- China has achieved high growth through rapid accumulation of capital (investment rates exceeding of output) and fast technological progress.
  - The latter achievement is in part a result of the Chinese governments strategy of encouraging foreign firmswhich are typically more productive than Chinese firmsto produce in China.
  - The government has also encouraged joint ventures between foreign and Chinese firms.
  - Such joint ventures allow Chinese firms to learn from more productive foreign firms.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: *World Economic Outlook* database, September 2011

- China has achieved high growth through rapid accumulation of capital (investment rates exceeding of output) and fast technological progress.
  - The latter achievement is in part a result of the Chinese governments strategy of encouraging foreign firmswhich are typically more productive than Chinese firmsto produce in China.
  - The government has also encouraged joint ventures between foreign and Chinese firms.
  - Such joint ventures allow Chinese firms to learn from more productive foreign firms.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: *World Economic Outlook* database, September 2011

- China has achieved high growth through rapid accumulation of capital (investment rates exceeding of output) and fast technological progress.
  - The latter achievement is in part a result of the Chinese governments strategy of encouraging foreign firmswhich are typically more productive than Chinese firmsto produce in China.
  - The government has also encouraged joint ventures between foreign and Chinese firms.
  - Such joint ventures allow Chinese firms to learn from more productive foreign firms.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	–0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: World Economic Outlook database, September 2011

- China has achieved high growth through rapid accumulation of capital (investment rates exceeding of output) and fast technological progress.
  - The latter achievement is in part a result of the Chinese governments strategy of encouraging foreign firmswhich are typically more productive than Chinese firmsto produce in China.
  - The government has also encouraged joint ventures between foreign and Chinese firms.
  - Such joint ventures allow Chinese firms to learn from more productive foreign firms.

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012
Output growth rate	9.8	10.5	9.6	9.2	10.3	9.5	9.0
Unemployment rate	2.7	3.9	4.2	4.3	4.1	4.0	4.0
Inflation rate	8.1	1.6	5.9	−0.6	3.3	5.5	3.3

Output growth rate: annual rate of growth of output (GDP). Inflation rate: annual rate of change of the price level (GDP deflator).

Source: *World Economic Outlook* database, September 2011

- China has achieved high growth through rapid accumulation of capital (investment rates exceeding of output) and fast technological progress.
  - The latter achievement is in part a result of the Chinese governments strategy of encouraging foreign firmswhich are typically more productive than Chinese firmsto produce in China.
  - The government has also encouraged joint ventures between foreign and Chinese firms.
  - Such joint ventures allow Chinese firms to learn from more productive foreign firms.

$$C = 800 + .75(Y - T)$$

$$I = 600,\ G = 500,\ T = 400$$

- Find equilibrium income. Find savings.
- Let autonomous consumption, c_0, decrease from 800 to 700. That is, let people be virtuous and try to save more and consume less.
- Find the new values for output and saving.

$$C = 800 + .75(Y - T)$$

$$I = 600,\ G = 500,\ T = 400$$

- Find equilibrium income. Find savings.
- Let autonomous consumption, c_0, decrease from 800 to 700. That is, let people be virtuous and try to save more and consume less.
- Find the new values for output and saving.

$$C = 800 + .75(Y - T)$$

$$I = 600,\ G = 500,\ T = 400$$

- Find equilibrium income. Find savings.
- Let autonomous consumption, c_0, decrease from 800 to 700. That is, let people be virtuous and try to save more and consume less.
- Find the new values for output and saving.

$$C = 800 + .75(Y - T)$$

$$I = 600,\ G = 500,\ T = 400$$

- Find equilibrium income. Find savings.
- Let autonomous consumption, c_0, decrease from 800 to 700. That is, let people be virtuous and try to save more and consume less.
- Find the new values for output and saving.

Comments, questions, or concerns?

References

Olivier Jean Blanchard and David Johnson. *Macroeconomics*. Prentice Hall, 6th edition, 2011. ISBN 9780133061635.