Lecture Eleven The Euro and Euro Crisis

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Outline

- 1. A Brief History of EU and EZ
- 2. The Economics of the Euro
- 3. Development and Crisis in Eurozone
- 4. Secular Stagnation and Structural Reform for Europe

European Integration: 1870 – 2014

	Major Political and Economic Events	Monetary Developments
1870-1914	Largely peaceful era; economic growth and stability.	The gold standard system of fixed exchange rates prevails.
1914-1945	World Wars I and II; economic malaise, Great Depression.	Collapse of gold standard, floating exchange rates with instability; capital controls widespread.
1946	Period of postwar rapid growth begins, and will last until 1970s.	The Bretton Woods system of fixed exchange rates established.
1947-1951	Marshall Plan reconstruction financed by United States and overseen by the European High Authority.	European Payments Union is created to free up the European payments system and facilitate trade.
1954–1965	In 1954, France, West Germany, Italy, Belgium, Netherlands, Luxembourg form European Coal and Steel Community (ECS). In 1957 they sign Treaty of Rome to form European Economic Community (EC). In 1967 the European Communities (EC) merges EEC, ECSC, and Euratom: Council of Ministers and European Commission established.	
1971-1973	First enlargement: Denmark, Ireland, and United Kingdom join (1973) to form an EC of 9 countries.	The Bretton Woods system of fixed exchange rates collapses.
1973-1979	European Parliament directly elected (1979).	European Monetary System (EMS) of monetary coopera- tion creates a currency basist called the eeu (a precurso of euro) and the Exchange Rate Mechanism (RSM), a system of quasi-fixed exchange rates (1979). Beglium, Luxembourg, Denmark, Germany, France, Ireland, Italy, and Netherlands join EMS/EBM: United Kingdom joins EMS only.
1981-1986	Second and Third enlargements: Greece (1981), Portugal and Spain (1986) expand EC to 12 countries.	Greece, Portugal, and Spain join EMS but not ERM.
1987-1990	Single European Act (1987) has goal of EC "single mar- ket" by 1992.	Spain (1989) and United Kingdom (1990) join ERM.
1990	German reunification in 1990 creates new unified German state, adding former East Germany to the EC.	Capital controls abolished in EC.
1991	Maastricht Treaty transforms EC into European Union (EU): to take effect in 1993. EU citizenship and EU enlargement process established. Plan for Economic and Monetary Union (EMU) adopted.	Plan for EMU includes a common currency (Britain and Denmark retain right to opt out), with ERM seen as an entry route. Rules for membership and convergence criteria established.
1992		Portugal joins ERM. ERM crisis: Britain exits ERM; ERM bands eventually widened.
1993	EU sets out Copenhagen Criteria, the political and eco- nomic conditions that future EU applicants must satisfy.	Applicants are expected to enter ERM/EMS and achieve the requirements for monetary union in a given period.

European Integration: 1870 – 2014

	Major Political and Economic Events	Monetary Developments
1995	Fourth enlargement: Austria, Finland, and Sweden expand EU to 15 countries. Treaty of Schengen will create com- mon border system, immigration policies, and free travel zone [Ireland and UK op our non-EU countries Iceland, Norway, and Switzerland opt in.)	Austria, Finland, and Sweden join EMS. Austria (1995) and Finland (1996) join ERM.
1997	Treaty of Amsterdam addresses EU citizenship, rights, powers of European Parliament, employment, and common foreign and security policy.	Stability and Growth Pact (SGP) is adopted to further enforce the Maastricht budgetary rules.
1998	Eleven countries say they will adopt the euro: France, Germany, Italy, Belgium, Netherlands, Luxembourg, Ireland, Portugal, Spain, Austria, Finland	The European Central Bank (ECB) is created. The 11 euro countries freeze their bilateral exchange rates on December 31.
1999		The euro is introduced as a unit of account on January 1. Euro notes and coins appear in 2002 and replace national currencies. Greece, Denmark join ERM.
2000		In Denmark voters reject euro adoption in a referendum.
2001	Treaty of Nice addresses EU expansion, amends and consolidates Rome and Maastricht treaties, and modifies voting procedures.	Greece becomes the twelfth country to join the Eurozone.
2003		In Sweden voters reject euro adoption in a referendum.
2004	Fifth enlargement: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia expand EU to 25 countries.	Estonia, Lithuania, and Slovenia join ERM.
2005	Ratification of EU Constitutional Treaty postponed indefi- nitely following rejection by voters in French and Dutch referenda. Controversial EU accession talks start for Turkey (candidate since 1999 and an associate member of EEC/ EC/EU since 1963).	Cyprus, Latvia, Malta, and Slovakia join ERM. 12 out of 25 Eurozone members are in violation of the Stability and Growth Pact rules.
2007	Sixth enlargement: Bulgaria and Romania expand EU to 27 countries.	Slovenia becomes the 13th country to join the Eurozone.
2008-2011	Global financial crisis (2008); peripheral countries (Greece, Ireland, Portugal, Spain) in deep recession and at risk of default (2009–); The troika (ECB/EU/IMF) bailout programs begin in crisis countries (2010).	Cyprus and Malta (2008), Slovakia (2009), and Estonia (2011) expand Eurozone to 17 countries; ECB (with the EU) takes extraordinary steps to support banks and governments.
2012-2014	Fiscal contraction in EU and harsh austerity measures in periphery. Eurozone enters double-dip recession (2012). Unemployment Climbs over 12%, youth unemployment over 24%; in 2013, a majority of people distrust the EU in 15 of 17 Eurozone countries: Croatia inions EU (2013).	ECB President Draghi promises (2012) to do "whatever it takes" to save the euro. Cyprus banking crisis (2013) is fifth troika program; de facto break in monetary union as capital controls imposed. Latvia joins the euro in 2014.

The EU-28 and the Euro Project in 2014

		YEAR JOINED				
		EU	ERM	Eurozone	Euro Parity (€1 =)	National Currency (Current or Former)
	Austria	1995	1995	1999	13.7603	schilling
	Belgium	1959	1979	1999	40.3399	frank
	Cyprus	2004	2005	2008	0.585274	pound
	Estonia	2004	2004	2011	15.6466	kroon
	Finland	1995	1996	1999	5.94573	markka
	France	1959	1979	1999	6.55957	franc
	Germany	1959	1979	1999	1.95583	mark
	Greece	1981	1999	2001	340.75	drachma
Countries	Ireland	1973	1979	1999	0.787564	pound
in the Eurozone	Italy	1959	1979	1999	1936.27	lira
Luiozone	Latvia	2004	2005	2014	0.702804	lats
	Luxembourg	1959	1979	1999	40.3399	franc
	Malta	2004	2005	2008	0.4293	lira
	Netherlands	1959	1979	1999	2.20371	guilder
	Portugal	1986	1992	1999	200.482	escudo
	Slovakia	2004	2005	2009	30.126	koruna
	Slovenia	2004	2004	2007	239.64	tolar
	Spain	1986	1989	1999	166.386	peseta
Countries	Denmark	1973	1999	?	7.46038	krone
in the ERM	Lithuania	2004	2004	2015?	3.4528	litas
0.1	Bulgaria	2007	?	?	?	lev
	Croatia	2013	?	?	?	kuna
	Czech Republic	2004	?	?	?	koruna
EU	Hungary	2004	?	?	?	forint
Countries	Poland	2004	?	?	?	zloty
	Romania	2007	?	?	?	leu
	Sweden	1995	?	?	?	krona
	United Kingdom	1973	1990-92	?	?	pound

Note: This table shows the progress of each country through EU membership, ERM membership, and adoption of the euro (as of 2014). The euro parities of Eurozone members and ERM members are also shown, although the former have now abolished their national currencies. Dates for future euro adoption are in most cases uncertain or unknown (shown by a question mark). *The United Kingdom and Denmark can legally opt out of the euro. Sweden is opting out de facto by not joining the ERM. All other countries are expected to join at some point.

Wikiwand: Exchange-rate Regimes for EU Members



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Wikiwand: EU and Eurozone in 2018



- 19 in the eurozone.
- 7 not in ERM II, but obliged to join the eurozone on meeting convergence criteria (Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, and Sweden).
- 1 in ERM II, with an opt-out (Denmark).
- 1 not in ERM II with an opt-out (United Kingdom).
 - Non-EU member states
- 4 using the euro with a monetary agreement (Andorra, Monaco, San Marino, and Vatican City).
- 2 using the euro unilaterally (Kosovo[h] and Montenegro).

Two Benefits of Fixed Exchange Rate Regime

- The term economic integration refers to the growth of market linkages in goods, capital, and labor markets among regions and countries. As integration rises, the efficiency benefits of a fixed exchange rate increase.
- If there is a greater degree of economic similarity between countries, then the economic stabilization costs of fixing the exchange rate are smaller. As symmetry rises, the stability costs of a fixed exchange rate decrease.

The Symmetry-Integration Diagram



Evidence: Benefits Measured by Trade Levels



Further Benefit: Credible Anchor to Control Inflation

In developing countries beset by high inflation, an exchange rate peg may be the only credible anchor.

$$\pi = rac{\Delta E}{E} + \pi^*$$

TA	BL	EΕ	8-1	

Inflation Performance and the Exchange Rate Regime (ross-county annual data from the period 1970 to 1990 can be used to explore the relationship, if any abvenest the exchange rate regime and the inflation performance of an economy. Roating is associated with slightly lower inflation in the words as a whole 0.9%) and in the advanced countries (3.3%) (columns 1 and 2). In emerging markets and developing countries, a fixed regime eventually delivers lower inflation outcomes, but on tright away (columns 3 and 4).

	Annual Inflation Rate (%)					
Regime Type	(1) World	(2) Advanced Countries	(3) Emerging Markets and Developing Countries	(4) Emerging Markets and Developing Countries (Excluding the Year after a Regime Change)		
Fixed	17.4%	4.8%	19.6%	8.8%		
Limited flexibility	11.1	8.3	12.4	10.8		
Managed floating	14.0	7.8	15.1	14.7		
Freely floating	9.9	3.5	21.2	15.8		
Freely falling	387.8	47.9	396.1	482.9		
Source: Author's calculations based on the dataset from Kenneth Rogoff, Aboka Mody, Nienike Qomez, Robin Bivolac, and Azaim M. Nicolain, 2004, "Evolution and Performance of Euchange Mate Regimes," IMF Occasional Paper No. 229, International Konetary Fund.						

Evidence: Inflation Control of Argentina



Figure 5.20 Disinflation in Argentina: Inflation rate, 1970–2006. Source: World Bank, *World Development Indicators*.

Note: From Bénassy-Quéré et al.(2010).

Further Benefit: Stabilization of External Wealth

The external wealth of a country will change with the exchange rate:

$$\Delta W_{\rm F} = \Delta E \left(A_{\rm S} - L_{\rm S} \right)$$

TABLE 8-2				
Measures of "Original Sin" Only a few developed countries can issue external liabilities denominated in their own currency. In the financial centers and the Eurozone, the fraction of external liabilities denominated in foreign currency is less than 10%. In the remaining developed countries, it avaneges about 70%. In developing countries, external liabilities denominated in foreign currency are close to 100% on average.				
	External Liabilities Denominated in Foreign Currency (average, %)			
Financial centers (United States, United Kingdom, Switzerland, Japan)	8%			
Eurozone countries	9			
Other developed countries	72			
Eastern European countries	84			
Middle East and African countries	90			
Developing countries	93			
Asia/Pacific countries	94			
Latin American and Caribbean countries	100			
Source: Bany Echeoprem, Ricando Haamann, and Ugo Panizza, "The Pain of Original Sin," In Bany Echeoprem and Ricando Haamann, ads., 2020, Other Revelope's Monog: Debt Denomination and Financial Instability in Emerging-Market Economies (Chicage: University of Chicage Pees).				

Evidence: Wealth Loss for Developing Countries

In countries that cannot borrow in their own currency, floating exchange rates are less useful as a stabilization tool and may be destabilizing.



Adjustment of the Symmetry-Integration Diagram



Main Cost of FIX: Loss of Monetary Autonomy



Output Losts of Fixed Exchange Rates Recent empirical work hinds that shocks which raise base country interest rates are associated with large output losses in countries that fix their currencies to the base, but not in countries that float. For example, as seen here, when a base country raises its interest rate by one percentage point, a country that floats experiences an average increase in its real GDP growth rate of 0.05% (not statistically significantly different from zero), whereas a country that fixes sees its real GDP growth rate slow on average by a significant 0.12%.

Source: Julian di Giovanni and Jay C. Shambaugh, 2008, "The Impact of Foreign Interest Rates on the Economy: The Role of the Exchange Rate Regime," Journal of International Economics, 74(2), 341-361. See Table 3.

Main Benefits of OCA: Same with FIX

- As market integration rises, the efficiency benefits of a common currency increase.
- As symmetry rises, the stability costs of a common currency decrease.



Further Factors for the Formation of OCA

- Labor Market Integration: Countries are more likely to want to form a currency union when their labor markets are more integrated.
- Fiscal Transfers: The better the fiscal transfer mechanisms, the more the countries are likely to want to form a currency union.
- Monetary Policy and Nominal Anchoring: Suppose that the common central bank of the currency union would be a more politically independent central bank, ...high-inflation countries are more likely to want to join the currency union.
- Political Objectives: Forming a currency union has value for political, security, strategic, or other reasons.

The Choice of FIX and OCA

When countries consider forming a currency union, the economic tests (based on symmetry and integration) set a higher bar than they set for judging whether it is optimal to fix.



OCA Criteria for EZ and US

- Interregional trade in the United States rises to levels much higher than those seen among EZ countries.
- U.S. and EZ shocks are comparably symmetric.



OCA Criteria for EZ and US (cont.)

- U.S. labor markets are very integrated compared with those of the EZ.
- The interstate fiscal stabilizers are large in the United States, but essentially nonexistent in the EZ.



Conclusion: EZ is not an OCA



ECB: Instrument and Goals

- The instrument used by the ECB is the interest rate at which banks can borrow funds.
- According to its charter, the ECB's primary objective is to "maintain price stability" in the euro area.
- Its secondary goal is to "support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community."

ECB: Forbidden Activities

- To prevent the use of monetary policy for other goals, the ECB may not directly finance member states' fiscal deficits or provide bailouts to member governments or national public bodies.
- In addition, the ECB has no mandate to act as a lender of last resort by extending credit to financial institutions in the Eurozone in the event of a banking crisis.

ECB: Governance and Decision Making

- Monetary policy decisions are made at meetings of the ECB's Governing Council, which consists of the central bank governors of the Eurozone national central banks and six members of the ECB's executive board.
- In practice, policy decisions are made by consensus rather than by majority voting.
- Meetings are usually held twice each month.

ECB: Accountability and Independence

- No monetary policy powers are given to any other EU institution. No EU institution has any formal oversight of the ECB, and the ECB does not have to report to any political body, elected or otherwise.
- The ECB does not release the minutes of its meetings. The ECB has independence not only with respect to its instrument (it sets interest rates) but also with respect to its goal (it gets to define what "price stability" means).

Five Convergence Criteria in the Maastricht Treaty (1991)

TABLE 10-3

Rules of Euro Membership The Maastricht Treaty of 1991 established five conditions that aspiring members of the Eurozone must satisfy prior to entry. The last two fiscal rules are also supposed to be obeyed by members even after entry.

Rule ([*] prior to entry only)	Criterion
Exchange rate*	Two consecutive years in ERM band with no devaluation (no change in central parity).
Inflation rate [*]	No more than 1.5 percentage points above the level in the three member states with the lowest inflation in the previous year.
Long-term nominal interest rate*	No more than 2 percentage points above the level in the three member states with the lowest inflation in the previous year.
Government deficit	No more than 3% of GDP in previous financial year. ¹
Government debt	No more than 60% of GDP in previous financial year. ²

Notes:

The ERM bands in effect at the time of the Moastricht Treaty were narrow ($\pm 2.25\%$ or $\pm 6\%$); since 1993 they have been wide ($\pm 15\%$). The first rule is now applied using the wide bands. Escape clauses are included in the last two fiscal rules, as follows: 10° The ratio must have declined substantially and continuously and reached a level close to 3% or, alternatively, must remain close to 3% while representing only an exceptional and temporary excess."

Breaking of Fiscal Rules



Breaking of Fiscal Rules The fiscal convergence criteria laid down by the Maastricht Treaty and affirmed by the Stability and Growth Pact have been widely ignored. This figure shows the number of times that each of the original 12 members of the Eurozone violated the 3% of GDP government deficit limit from accession until 2010. After the global financial crisis and double-dip recession, the frequency of these violations increased even further.

Source: Martin Wolf, "Implications of the Crisis for Stability and Growth in the Eurozone," World Bank Workshop on Inclusive Growth in Advanced Countries, New York University, October 8, 2010.

Summary: Policy Shortcomings

- Limited Lender of Last Resort
- No Fiscal Union
- No Banking Union
- Sovereign-Bank Doom Loop
- Labor Immobility
- Exit Risk

Inflation Convergence



Note: Annual growth rate of "Consumer prices" from BIS. The dotted lines indicate 1999 and 2008.

Long-term Interest Rate Convergence and Divergence



Note: "Long-term interest rate statistics" from ECB. The dotted lines indicate 1999 and 2008.

Current Account Imbalances

Current Account (1992-2007)

Percent of GDP -7 -8 - North South -10---- Euro Area -12 -1992 1994 1996 1998 2000 2002 2004 2006

Source: Holinski et al.(2012).



Source: Wikipedia.

Low Interest Rate and Credit Boom



Budget Deficit and Public Debt to GDP: 2009 and 2012



Source: Wikipedia, original data from EuroStat.

Timeline of the Crisis



Note: In 2010 the debt problems in Greece and elsewhere were symptoms of deeper macroeconomic and financial conflicts that put the Eurozone at risk. German Chancellor Merkel and French President Sarkozy are shown watching from the ramparts.

More Information about the Euro Crisis on Wikiwand:

- European Debt Crisis
- 2000s European sovereign debt crisis timeline

EURIBOR-EONIA Swap Spread



Source: European Banking Federation.

a. Difference between the 3-month euro interbank offered rate (EURIBOR), the interest rate at which euro interbank 3-month deposits are offered by one prime bank to another prime bank within the euro area, and the EONIA swap is an interest rate swap transaction in which one party agrees to pay interest at a fixed rate to another party in exchange for receiving interest at a floating rate based on EONIA (the euro overright interest average).

Source: Shambaugh(2012).

The Euro's Three Crises



Source: Shambaugh, J.C. 2012, The euro's three crises, Brookings Papers on Economic Activity, 2012, P157-231

Trust Crises











Trust in the United Nations Difference in level of trust



Source: Algan, Y., S. Guriev, E. Papaioannou, and E. Passari, The European trust crisis and the rise of populism, *Brookings Papers on Economic Activity*, 2017(2), P309-400 Note: Data from European Social Survey; Eurostat; authors? calculations. The sample includes 24 European countries at the NUTS 2 level of aggregation. The unemployment rate is measured as a percentage.

Optimistic: Self-Fulfilling of OCA

- Even if the Eurozone isn't an OCA now, by adopting a common currency, it might become an OCA in the future.
- The euro would make the countries converge as they trade much more intensively with one another.
- If goods markets are better connected, a case can be made that shocks will be more rapidly transmitted within the EU and will be felt more symmetrically.
- The euro-optimists see the EU single-market project as an ongoing process and the single currency as one of its crucial elements.

Pessimistic: The Centrifugal Force Tearing the OCA Apart

- Further goods market integration might also lead to more specialization in production. If specialization increases, each country will be less diversified and will face more asymmetric shocks.
- Whether the common currency will encourage greater labor and capital mobility? Maybe it will encourage more fiscal federalism? As with the arguments about the effects on trade creation and specialization, evidence for these claims is fuzzy.

Which Way for the Euro?



What is Secular Stagnation?

Larry Su	mmers		HOME CONTACT	SEARCH
COMMENTARY	RESEARCH	TEACHING	MEDIA RESOURCES	Lawrence H.
Secular Stagnation achieved by unsust challenge of our tir eminent Depression November 2013 sp	agnation n – a prolonged peri- tainable financial cor mes. The concept of on-era economist Alv peech on the topic." J	Summers is the Charles W. Eliot University Professor and President Emeritus at Harvard University. He served as the 71st Secretary of the Treasury for President Clinton and the Director of		
"Secular stagnation even truer today" June 1, 2017			the National Economic Council for President Obama.	
"Secular Stagnation	in the Open Econor	ny" April 28, 2016		FULL BIO
"The Age of Secular	Stagnation" Februar	y 17, 2016		
e: Personal websi	ite of L. Summers			

Signs of Secular Stagnation: Prolonged Low Growth



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Signs of Secular Stagnation: Prolonged Low Interest Rate



Note: Forecasts are those reported by Blue Chip Economic Indicators released in March of the given calendar year, the median of over 50 privatesector economists. Source: Blue Chip Economic Indicators, Aspen Publishers.

Source: CES(2015), Figure 5 "10-Year Treasury Rates and Historical Economist Forecasts".

One-Year and 10-Year U.S. Nominal Interest Rates



Global Interest Rate in History



Source: Schmelzing, P. 2018, Eight centuries of the risk-free rate: bond market reversals from the Venetians to the 'VaR shock', Staff Working Paper No.686, Bank of England

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Low Interest Rate and Liquidity Trap

First, if real rates are low in normal times, adverse macroeconomic shocks are more likely to require negative real rates to restore a full-employment investment-savings balance. In today's low-inflation environment, this tends to undermine the effectiveness of monetary policy.



Source: Krugmann(1999) "Thinking about the liquidity trap".

Low Interest Rate and Financial Instability

Second, low nominal and real interest rates undermine financial stability. According to Summers(2014), there are three main channels:

- increasing risk-taking as investors reach for yield;
- promoting irresponsible lending;
- making Ponzi financial structures more attractive.

According to Wikiwand, Hyman Minsky stated that in prosperous times, when corporate cash flow rises beyond what is needed to pay off debt, a speculative euphoria develops, and soon thereafter debts exceed what borrowers can pay off from their incoming revenues, which in turn produces a financial crisis. This slow movement of the financial system from stability to fragility, followed by crisis, is something for which Minsky is best known, and the phrase "Minsky moment" refers to this aspect of Minsky's academic work.

Determination of Interest Rate

• The real interest rate of home country:

$$r = \frac{1+g_c}{\beta} - 1$$

• The nominal interest rate for a closed economy:

$$i = r + \pi^{\epsilon}$$

• The Real Interest Rate Parity in open economy:

$$r = r^*$$

Derivation of Real Interest Rate from HOP

Given the discount factor β , the real interest rate r, and incomes of present and future $Q_1, Q_2 = (1 + g_y)Q_1$, the Household Optimization Problem(HOP) is to maximize the life-cycle utility (T = 1, 2):

$$Max_{C_1,C_2} U = \ln C_1 + \beta \ln C_2$$

s.t. $C_1 + S = Q_1$
 $C_2 = (1+r)S + Q_2$

After solving the problem, we can get:

$$\frac{C_2}{C_1} = 1 + g_c = \beta \left(1 + r\right)$$

$$r=\frac{1+g_c}{\beta}-1$$

Evidence: Productivity and Real Interest Rate



Source: CEA(2015), Figure 7. "10-Year Real Interest Rate, Real Consumption, and Productivity"

Evidence: R&D and Innovation Returns



Source: NSF Science & Engineering Indicators 2014

Source: Adapted from Fernald and Jones (2014)

Source: Rachel and Smith(2016).

The Consensus of Monetary and Credit Policies

• CEA(2015):

The goal of policy should not be to target a particular rate, but to support long-run growth, maintain price stability, and strengthen the resilience of financial markets.

- Summers(2016):
 - The defining challenge is going to be absorbing all the savings in a satisfactory way in the global economy for the next decade.
 - The first priority for policy... (should be) a concerted effort to identify and find the means of financing the most productive investment opportunities globally.

List of Structural Reform Policies

In the review of Teulings and Baldwin(2014), the policies to promote growth will include:

- Improving the education system
- Investing in the physical infrastructure.
- Removing barriers for labour mobility between firms by trimming down employment protection legislation.
- Increasing incentives for low-skilled workers to participate on the labour market.
- Simplifying procedures for starting up businesses.
- Applying anti-monopoly policies to reduce the profit margins in new IT industries.