Financial Crises: Why They Occur and What to Do about Them

E. Maskin Harvard University

WCO IT/TI Conference

Baku

June 12, 2019

• recent financial crisis only latest in long sequence

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries
 - famous example: South Sea Bubble, 1711

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries
 - famous example: South Sea Bubble, 1711
- probably crises will continue in future

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries
 - famous example: South Sea Bubble, 1711
- probably crises will continue in future
 - each crisis somewhat different from predecessors

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries
 - famous example: South Sea Bubble, 1711
- probably crises will continue in future
 - each crisis somewhat different from predecessors
 - even if we fix mortgage loan market in U.S.(where recent crisis started), something new will happen

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries
 - famous example: South Sea Bubble, 1711
- probably crises will continue in future
 - each crisis somewhat different from predecessors
 - even if we fix mortgage loan market in U.S.(where recent crisis started), something new will happen
 - may not be desirable to prevent all crises

- recent financial crisis only latest in long sequence
- history of financial crises goes back centuries
 - famous example: South Sea Bubble, 1711
- probably crises will continue in future
 - each crisis somewhat different from predecessors
 - even if we fix mortgage loan market in U.S.(where recent crisis started), something new will happen
 - may not be desirable to prevent all crises
- however, can do much better at limiting crises

• Why does credit market have repeated crises and other markets do not?

- Why does credit market have repeated crises and other markets do not?
- Why does credit market require substantial *ex post* intervention (and others do not)?

- Why does credit market have repeated crises and other markets do not?
- Why does credit market require substantial *ex post* intervention (and others do not)?
- What can be done *ex ante* to prevent/limit crises?

irrationality

- irrationality
 - on part of bankers

- irrationality
 - on part of bankers
 - on part of borrowers

- irrationality
 - on part of bankers
 - on part of borrowers
- panic

- irrationality
 - on part of bankers
 - on part of borrowers
- panic
- greed

- irrationality
 - on part of bankers
 - on part of borrowers
- panic
- greed
- lack of ethics

- irrationality
 - on part of bankers
 - on part of borrowers
- panic
- greed
- lack of ethics
- overconsumption in U.S./ oversaving in China

- irrationality
 - on part of bankers
 - on part of borrowers
- panic
- greed
- lack of ethics
- overconsumption in U.S./ oversaving in China
- complicated derivatives

- irrationality
 - on part of bankers
 - on part of borrowers
- panic
- greed
- lack of ethics
- overconsumption in U.S./ oversaving in China
- complicated derivatives
- bankers' bonuses

- irrationality
 - on part of bankers
 - on part of borrowers
- panic
- greed
- lack of ethics
- overconsumption in U.S./ oversaving in China
- complicated derivatives
- bankers' bonuses
- banks too big to fail

(1) credit *lifeblood* for rest of economy

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls
- (2) small shock to credit market often *magnified*

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls
- (2) small shock to credit market often *magnified*
 - if some potato growers fail, won't cause other growers to fail

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls
- (2) small shock to credit market often *magnified*
 - if some potato growers fail, won't cause other growers to fail
 - if some banks fail, may well cause other banks to go under

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls
- (2) small shock to credit market often magnified
 - if some potato growers fail, won't cause other growers to fail
 - if some banks fail, may well cause other banks to go under
- (3) credit market not self-correcting

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls
- (2) small shock to credit market often magnified
 - if some potato growers fail, won't cause other growers to fail
 - if some banks fail, may well cause other banks to go under
- (3) credit market not *self-correcting*
 - if some potato growers fail, others will step into breach no outside intervention needed

- (1) credit *lifeblood* for rest of economy
 - if crisis in market for potatoes, won't bring down market for automobiles
 - if credit market doesn't work, enterprises in *all* markets will have trouble investing and meeting payrolls
- (2) small shock to credit market often magnified
 - if some potato growers fail, won't cause other growers to fail
 - if some banks fail, may well cause other banks to go under
- (3) credit market not *self-correcting*
 - if some potato growers fail, others will step into breach no outside intervention needed
 - if some banks fail, credit market can get "stuck" - no banks willing to lend

Elaboration on points 2 and 3

Elaboration on points 2 and 3

• Suppose blight wipes out potato crop in Ireland

- Suppose blight wipes out potato crop in Ireland
- What will happen?

- Suppose blight wipes out potato crop in Ireland
- What will happen?
 - immediate effect is fall in overall potato output

- Suppose blight wipes out potato crop in Ireland
- What will happen?
 - immediate effect is fall in overall potato output
 - but demand hasn't changed - fewer potatoes to go around

- Suppose blight wipes out potato crop in Ireland
- What will happen?
 - immediate effect is fall in overall potato output
 - but demand hasn't changed - fewer potatoes to go around
 - so price of potatoes will be bid up

- Suppose blight wipes out potato crop in Ireland
- What will happen?
 - immediate effect is fall in overall potato output
 - but demand hasn't changed - fewer potatoes to go around
 - so price of potatoes will be bid up
 - induces potato growers in Slovakia to grow and sell more

• So potato market "self-correcting"

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output
 - so effect of blight mitigated in long run

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output
 - so effect of blight mitigated in long run
- Government intervention not needed

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output
 - so effect of blight mitigated in long run
- Government intervention not needed
- Government interference in potato market likely to make things worse

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output
 - so effect of blight mitigated in long run
- Government intervention not needed
- Government interference in potato market likely to make things worse
- Suppose puts cap on potato price or taxes "windfall" profits

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output
 - so effect of blight mitigated in long run
- Government intervention not needed
- Government interference in potato market likely to make things worse
- Suppose puts cap on potato price or taxes "windfall" profits
 - discourages expansion of output that can make up for crop failure

- So potato market "self-correcting"
 - crop failure hurts consumers in short run - higher prices
 - but high prices induce suppliers to expand output
 - so effect of blight mitigated in long run
- Government intervention not needed
- Government interference in potato market likely to make things worse
- Suppose puts cap on potato price or taxes "windfall" profits
 - discourages expansion of output that can make up for crop failure
 - this creates potato shortage or black market in potatoes

Credit market is just the *opposite*

• entrepreneurs

- entrepreneurs
 - have ideas

- entrepreneurs
 - have ideas
 - but no money

- entrepreneurs
 - have ideas
 - but no money
- banks (catch-all term)

- entrepreneurs
 - have ideas
 - but no money
- banks (catch-all term)
 - have (some) money

- entrepreneurs
 - have ideas
 - but no money
- banks (catch-all term)
 - have (some) money
 - can evaluate ideas

- entrepreneurs
 - have ideas
 - but no money
- banks (catch-all term)
 - have (some) money
 - can evaluate ideas
 - lend money to good ideas

• bank may not have enough money for all good ideas

- bank may not have enough money for all good ideas
- so has incentive to borrow money itself

- bank may not have enough money for all good ideas
- so has incentive to borrow money itself
 - from other banks

- bank may not have enough money for all good ideas
- so has incentive to borrow money itself
 - from other banks
- i.e., has incentive to take on *leverage*

- bank may not have enough money for all good ideas
- so has incentive to borrow money itself
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff

- bank may not have enough money for all good ideas
- so has incentive to borrow money *itself*
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return

- bank may not have enough money for all good ideas
- so has incentive to borrow money *itself*
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return
 - if bank puts \$100 of own money in

- bank may not have enough money for all good ideas
- so has incentive to borrow money *itself*
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return
 - if bank puts \$100 of own money inexpects to get back \$120 -- 20% return

- bank may not have enough money for all good ideas
- so has incentive to borrow money *itself*
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return
 - if bank puts \$100 of own money inexpects to get back \$120 -- 20% return
 - if also borrows \$900 from other banks

- bank may not have enough money for all good ideas
- so has incentive to borrow money *itself*
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return
 - if bank puts \$100 of own money inexpects to get back \$120 -- 20% return
 - if also borrows \$900 from other banksexpects to get back \$1200

- bank may not have enough money for all good ideas
- so has incentive to borrow money itself
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return
 - if bank puts \$100 of own money inexpects to get back \$120 -- 20% return
 - if also borrows \$900 from other banksexpects to get back \$1200repays \$900

- bank may not have enough money for all good ideas
- so has incentive to borrow money itself
 - from other banks
- i.e., has incentive to take on *leverage*
 - can increase payoff
- For example, suppose good idea has 20% return
 - if bank puts \$100 of own money inexpects to get back \$120 -- 20% return
 - if also borrows \$900 from other banks expects to get back \$1200 repays \$900\$300 profit -- 200% return!

• good for bank (higher payoff)

- good for bank (higher payoff)
- good for whole economy

- good for bank (higher payoff)
- good for whole economy
 - allows more good ideas to be funded

- good for bank (higher payoff)
- good for whole economy
 - allows more good ideas to be funded
 - so more innovation

- good for bank (higher payoff)
- good for whole economy
 - allows more good ideas to be funded
 - so more innovation
 - more growth

• But there's a hitch

- But there's a hitch
- So far, have omitted important factor:

- But there's a hitch
- So far, have omitted important factor: risk

- But there's a hitch
- So far, have omitted important factor:

- new idea not sure thing

- But there's a hitch
- So far, have omitted important factor:

- But there's a hitch
- So far, have omitted important factor:

- But there's a hitch
- So far, have omitted important factor:

new idea not sure thingmay pay offmay not

– so funding new idea is a bet

- But there's a hitch
- So far, have omitted important factor:

- new idea not sure thingmay pay offmay not
- so funding new idea is a bet
- leverage increases risk

- But there's a hitch
- So far, have omitted important factor:

- so funding new idea is a bet
- leverage increases risk
 - if invest \$100 of own money and lose bet

- But there's a hitch
- So far, have omitted important factor:

- so funding new idea is a bet
- leverage increases risk
 - if invest \$100 of own money and lose bet lose \$100

- But there's a hitch
- So far, have omitted important factor:

- so funding new idea is a bet
- leverage increases risk
 - if invest \$100 of own money and lose bet lose \$100
 - but if also invest \$900 of borrowed money

- But there's a hitch
- So far, have omitted important factor:

- so funding new idea is a bet
- leverage increases risk
 - if invest \$100 of own money and lose bet lose \$100
 - but if also invest \$900 of borrowed money lose \$1000

- But there's a hitch
- So far, have omitted important factor:

- so funding new idea is a bet
- leverage increases risk
 - if invest \$100 of own money and lose bet lose \$100
 - but if also invest \$900 of borrowed money lose \$1000
 - highly leveraged bank may fail if loses bet or two

• no problem if confined to original bank

- no problem if confined to original bank
 - taken on calculated risk

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business
- but leverage implies that other banks affected too

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business
- but leverage implies that other banks affected too
 - if new idea fails

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business
- but leverage implies that other banks affected too
 - if new idea fails
 - then lending bank fails

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business
- but leverage implies that other banks affected too
 - if new idea fails
 - then lending bank fails
 - then banks that lent to lending bank may *also* fail

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business
- but leverage implies that other banks affected too
 - if new idea fails
 - then lending bank fails
 - then banks that lent to lending bank may also fail
 - chain reaction of failures

- no problem if confined to original bank
 - taken on calculated risk
 - if wins, big payoff
 - if loses, may go out of business
- but leverage implies that other banks affected too
 - if new idea fails
 - then lending bank fails
 - then banks that lent to lending bank may also fail
 - chain reaction of failuressystemic risk

• small problem in credit market can often spread and become *big* problem

- small problem in credit market can often spread and become *big* problem
 - a few bank failures lead to epidemic

- small problem in credit market can often spread and become *big* problem
 - a few bank failures lead to epidemic
- small problems in potato market tend to be *self-containing*

- small problem in credit market can often spread and become *big* problem
 - a few bank failures lead to epidemic
- small problems in potato market tend to be *self-containing*
- initial problem *not* self-correcting (as in potato market)

- small problem in credit market can often spread and become *big* problem
 - a few bank failures lead to epidemic
- small problems in potato market tend to be *self-containing*
- initial problem *not* self-correcting (as in potato market)
 - gets aggravated

Points to a central way credit market differs from potato market:

- small problem in credit market can often spread and become *big* problem
 - a few bank failures lead to epidemic
- small problems in potato market tend to be *self-containing*
- initial problem *not* self-correcting (as in potato market)
 - gets aggravated
 - ends up with credit crunch

Points to a central way credit market differs from potato market:

- small problem in credit market can often spread and become *big* problem
 - a few bank failures lead to epidemic
- small problems in potato market tend to be *self-containing*
- initial problem *not* self-correcting (as in potato market)
 - gets aggravated
 - ends up with credit crunch
 - not due to panic, but to rational responses
 by bankers and borrowers

• in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans

- in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans
 - externality: effect your actions have on others that you don't take into account

- in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans
 - externality: effect your actions have on others that you don't take into account
 - when bank highly leveraged and makes risky loans, puts other banks in jeopardy

- in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans
 - externality: effect your actions have on others that you don't take into account
 - when bank highly leveraged and makes risky loans, puts other banks in jeopardy
 - but doesn't factor this effect in when leverages itself and makes loans (not harmed by it)

- in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans
 - externality: effect your actions have on others that you don't take into account
 - when bank highly leveraged and makes risky loans, puts other banks in jeopardy
 - but doesn't factor this effect in when leverages itself and makes loans (not harmed by it)
 - not irrational or unethical or overly greedy

- in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans
 - externality: effect your actions have on others that you don't take into account
 - when bank highly leveraged and makes risky loans, puts other banks in jeopardy
 - but doesn't factor this effect in when leverages itself and makes loans (not harmed by it)
 - not irrational or unethical or overly greedy
- markets with significant externalities often don't work well on own

- in economics terminology, bank exerts an *externality* on other banks by being highly leveraged and making risky loans
 - externality: effect your actions have on others that you don't take into account
 - when bank highly leveraged and makes risky loans, puts other banks in jeopardy
 - but doesn't factor this effect in when leverages itself and makes loans (not harmed by it)
 - not irrational or unethical or overly greedy
- markets with significant externalities often don't work well on own
 - take clean air, for example

• Why isn't there a market for clean air?

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry
 - laundry may offer to pay steel plant to reduce smoke (so market for smoke reduction exists)

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry
 - laundry may offer to pay steel plant to reduce smoke (so market for smoke reduction exists)
 - but smoke doesn't just affect laundry - affects many other enterprises

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry
 - laundry may offer to pay steel plant to reduce smoke (so market for smoke reduction exists)
 - but smoke doesn't just affect laundry - affects many other enterprises
 - by paying for reduction, laundry confers benefit on other enterprises (externality)

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry
 - laundry may offer to pay steel plant to reduce smoke (so market for smoke reduction exists)
 - but smoke doesn't just affect laundry - affects many other enterprises
 - by paying for reduction, laundry confers benefit on other enterprises (externality)
 - laundry doesn't take this into account

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry
 - laundry may offer to pay steel plant to reduce smoke (so market for smoke reduction exists)
 - but smoke doesn't just affect laundry - affects many other enterprises
 - by paying for reduction, laundry confers benefit on other enterprises (externality)
 - laundry doesn't take this into account
 - so likely to *underpay* for reduction - smoke not reduced as much as should be

- Why isn't there a market for clean air?
- in fact, there *is* such a market, but so limited we hardly see it
- suppose laundry next door to steel plant
 - smoke from steel plant interferes with laundry
 - laundry may offer to pay steel plant to reduce smoke (so market for smoke reduction exists)
 - but smoke doesn't just affect laundry - affects many other enterprises
 - by paying for reduction, laundry confers benefit on other enterprises (externality)
 - laundry doesn't take this into account
 - so likely to *underpay* for reduction - smoke not reduced as much as should be
- solution: government imposes cap or fine on smoke emissions by steel plant

- too much risk

- too much risk
- too much leverage

- too much risk
- too much leverage

Need two interventions for credit market

- too much risk
- too much leverage

Need *two* interventions for credit market

• ex post: after banks get into trouble

- too much risk
- too much leverage

Need *two* interventions for credit market

- ex post: after banks get into trouble
- ex ante: to prevent crisis in first place

Ex post intervention:If some banks get into trouble,

If some banks get into trouble,

• government can bail them out

If some banks get into trouble,

- government can bail them out
 - infuse with capital so can continue to lend

If some banks get into trouble,

- government can bail them out
 - infuse with capital so can continue to lend
- but bailout important primarily for *other* banks that would be hurt if bailed-out banks failed

• if banks anticipate being bailed out when get in trouble

- if banks anticipate being bailed out when get in trouble
 - have incentive to take on highly risky loans, e.g.,
 subprime mortgage loans (moral hazard)

- if banks anticipate being bailed out when get in trouble
 - have incentive to take on highly risky loans, e.g.,
 subprime mortgage loans (moral hazard)
- so *ex post* solution to financial crisis actually makes crisis more likely!

- if banks anticipate being bailed out when get in trouble
 - have incentive to take on highly risky loans, e.g.,
 subprime mortgage loans (moral hazard)
- so *ex post* solution to financial crisis actually makes crisis more likely!
- that's where ex ante intervention comes in:

- if banks anticipate being bailed out when get in trouble
 - have incentive to take on highly risky loans, e.g.,
 subprime mortgage loans (moral hazard)
- so *ex post* solution to financial crisis actually makes crisis more likely!
- that's where *ex ante* intervention comes in: regulation

Bailout policy comes at cost:

- if banks anticipate being bailed out when get in trouble
 - have incentive to take on highly risky loans, e.g.,
 subprime mortgage loans (moral hazard)
- so *ex post* solution to financial crisis actually makes crisis more likely!
- that's where *ex ante* intervention comes in: regulation
 - constraints on what banks can do

Two reasons why regulation needed

Two reasons why regulation needed

 prospect of bailouts induces banks to make too-risky loans (moral hazard)

Two reasons why regulation needed

- prospect of bailouts induces banks to make too-risky loans (moral hazard)
- bank ignores externality imposed on other banks by too-risky loans and leverage - undervalues cost of these loans and leverage

minimum standards for loans

- minimum standards for loans
 - borrowers must be sufficiently credit worthy

- minimum standards for loans
 - borrowers must be sufficiently credit worthy
- limits on leverage / capital requirements

- minimum standards for loans
 - borrowers must be sufficiently credit worthy
- limits on leverage / capital requirements
 - given lending, need minimum capital level

- minimum standards for loans
 - borrowers must be sufficiently credit worthy
- limits on leverage / capital requirements
 - given lending, need minimum capital level
 - limiting leverage limits bank's liquidity

• restrictions on derivatives

- restrictions on derivatives
 - derivatives allow risks to be shared with others

- restrictions on derivatives
- derivatives allow risks to be shared with others
- risk-sharing useful

- restrictions on derivatives
- derivatives allow risks to be shared with others
- risk-sharing useful
- however, encourages riskier lending

- restrictions on derivatives
- derivatives allow risks to be shared with others
- risk-sharing useful
- however, encourages riskier lending
- so, because of externality, should restrict derivative trading

• regulating size of banks

- regulating size of banks
 - problem with big banks *not* too big too fail

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks:

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks: because of externality

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks:
 because of externality
 - bank takes too much risk

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks:
 because of externality
 - bank takes too much risk
 - in particular, doesn't diversify sufficiently

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks:
 because of externality
 - bank takes too much risk
 - in particular, doesn't diversify sufficiently
 - so too likely to fail

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks:
 because of externality
 - bank takes too much risk
 - in particular, doesn't diversify sufficiently
 - so too likely to fail
 - small banks also too likely to fail

- regulating size of banks
 - problem with big banks *not* too big too fail
 - several small banks failing has same effect as one big bank failing
- problem with big banks:
 because of externality
 - bank takes too much risk
 - in particular, doesn't diversify sufficiently
 - so too likely to fail
 - small banks also too likely to fail
 - but several small banks less like to fail than one big bank, because each does something different

• Have argued that can understand recent financial crisis without appealing to

- Have argued that can understand recent financial crisis without appealing to
- irrationality

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics

- Have argued that can understand recent financial crisis without appealing to
 - irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives

- Have argued that can understand recent financial crisis without appealing to
 - irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses

- Have argued that can understand recent financial crisis without appealing to
 - irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)
- Solution

- Have argued that can understand recent financial crisis without appealing to
 - irrationality
 - panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)
- Solution
 - bailouts

- Have argued that can understand recent financial crisis without appealing to
 - irrationality
 - panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)
- Solution
 - bailouts
- regulation

- Have argued that can understand recent financial crisis without appealing to
 - irrationality
 - panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)
- Solution
 - bailouts
- regulation

needed to correct

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)
- Solution
 - bailouts
- regulation

needed to correct

externality

- Have argued that can understand recent financial crisis without appealing to
- irrationality
- panic
- greed
- lack of ethics
- opaqueness of derivatives
- bonuses
- too big to fail
- Crisis brought on by
 - externality (one bank's risk-taking affects other banks)
- moral hazard (prospect of bailouts)
- Solution
 - bailouts
- regulation

needed to correct

externality

moral hazard created by bailouts

• Well-designed regulation/bailout package

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur
- Can't hope to prevent credit crises completely and still allow for creativity

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur
- Can't hope to prevent credit crises completely and still allow for creativity
 - can't anticipate all possible innovations by banks

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur
- Can't hope to prevent credit crises completely and still allow for creativity
 - can't anticipate all possible innovations by banks
 - so can't have rules that prevent only harmful innovations

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur
- Can't hope to prevent credit crises completely and still allow for creativity
 - can't anticipate all possible innovations by banks
 - so can't have rules that prevent only harmful innovations
 - trade-off between dynamism and stability

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur
- Can't hope to prevent credit crises completely and still allow for creativity
 - can't anticipate all possible innovations by banks
 - so can't have rules that prevent only harmful innovations
 - trade-off between dynamism and stability
 - good balance from 1940-1980

- Well-designed regulation/bailout package
 - can prevent many crises from getting started - rules against subprime loans would have prevented this one
 - can resolve them if do occur
- Can't hope to prevent credit crises completely and still allow for creativity
 - can't anticipate all possible innovations by banks
 - so can't have rules that prevent only harmful innovations
 - trade-off between dynamism and stability
 - good balance from 1940-1980
- Can certainly do a lot better than we've done this time