Rational Panic[1]

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Intro

Thanks for the invitation to give this talk today on 'Banks and financial crises'.

After the advertising went out, I thought of a better title that I could have used: **Rational Panic**

The idea of rational panic might sound like a contradiction in terms. But I hope by the end you'll have a clearer idea of what I mean by it, and how it relates to the work of this year's Nobel Prize winners.

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Like any other academic discipline, economics is highly specialised.

We don't always have a good idea of what's happening outside our own field.

I wonder if you've ever had the experience of seeing the announcement of the economics Nobel Prize winners and realising, with some embarrassment, that you've never heard of them.

I won't call for a show of hands, but I'm willing to admit that I've had that experience on more than one occasion.

So this year I was pleased to see that the prizes went to three economists that I do know something about – Diamond, Dybvig and Bernanke.

Preliminary ideas

I first encountered the work of our three prize winners as a grad student at LSE in the mid 1980s. Their work was regarded as fresh and original at the time, and it turned out to have an important bearing on things that happened in the decades since then.

To understand why their work was important we can start with a preliminary observation:

- Macroeconomics, as a field of study, is not very good at incorporating the **financial sector**, or modelling how financial activity interacts with the rest of the economy.

Usually, in macroeconomics, we think about business cycle events in terms of supply and demand shocks. That is, interactions between supply and demand in markets for **goods and services**, and in markets for **productive resources**. Standard macro models are built around that.

[1] End of year talk to staff and students at the University of Sydney on the subject of the 2022 Nobel Prize winners in Economics, November 2022.

Financial activity doesn't quite fit into that framework because it doesn't primarily involve the exchange of goods and services. Instead, it involves the exchange of **financial claims** – or, in effect, different kinds of promises.

The thing about financial claims is that they don't represent net worth for the economy as a whole. One person's claim is another person's obligation, so financial claims and obligations in a closed economy always cancel each other out.

That raises a number of interesting questions.

- Why should the behaviour of a set of claims that always net to zero be interesting and relevant for understanding the macro economy?
- How do we model it?
- In what sense can we say that some claim-structure, like what we find in a bank, is efficient? What purpose does it serve?
- And in what ways can the banking sector exert an independent influence on business cycles that's not captured by conventional supply and demand analysis?
    - Think, for example, of how a debt-fuelled real estate bubble might amplify a business cycle expansion;
    - or think how a collapse of financial confidence might have the opposite effect;
    - How do those things get into our models when we're talking about a set of claims that **net to zero**?

Banks and liquidity

Our three prize winners, in different ways, had some well-focused answers to those questions.

The paper that Diamond and Dybvig are probably best known for is titled "Bank runs, deposit insurance, and liquidity". It was published in the JPE in 1983.

The authors modelled the core function of banks in terms of the provision of **liquidity services** to their depositors. Banks do a lot of things, but their core business is to take deposits and make loans.

We can ask:

- Why is there a demand for that kind of service?

Obviously, funds need to be able to flow from surplus to deficit units in the economy. And that generates financial claims. But why is there a demand for financial claims to take that **particular form**?

Diamond and Dybvig's answer was to model this as a demand for **liquidity**.

- Direct loans are not generally liquid – you can't expect to get your money back on demand.
- Other financial claims like company shares are liquid but don't have a stable value.

- Currency notes are both liquid and stable, but they don't pay a market return.

So there's a demand for an asset that's liquid, pays a market rate of return, and has a stable monetary value. In other words, bank deposits.

In their analysis, Diamond and Dybvig formalised the idea that this demand explains both the **economic rationale of banking** as part of the monetary system, and also the **vulnerability** of banks to runs and panics.

I'll come back to the economic role of banks in a moment.

But first I'll focus on the **vulnerability**.

Bank vulnerability to runs and panics

Another way of describing what banks do is to say they're in the **maturity transformation** business. They borrow short in order to lend long.

The particular vulnerability of banks arises from the interaction of this with a second feature, namely:

- The assets of a bank – its loans to customers – are **worth less in a fire sale** than if they're held to maturity.

Think of a bank that's loaned $100m to a property developer. The bank might have a good long-term connection with the borrower. And, based on that, it might have a lot of confidence that the loan gets repaid in full when it falls due.

Now suppose the bank is forced to sell the loan to a third party at short notice. They're likely to be selling to someone who doesn't have the same trust relationship with the borrower. So they might have to sell at a discount and realise a loss. If losses of that nature are big enough, the bank becomes insolvent.

We can easily see how a **run** on the bank can generate that situation. Under certain conditions, if enough depositors want their money back at the same time, the bank can be forced into a fire sale that puts its capital position at risk, even if it would have otherwise been sound.

Obviously there are factors that can make a bank either more or less vulnerable to this kind of event. Holding more liquid assets, more capital to absorb losses, and better credit standards are all things that can help to reduce a bank's vulnerability. So too will system-wide protections like deposit insurance, and the role of the central bank as lender of last resort.

Solvency and vulnerability of a bank are not directly observable, but they can be inferred, to some degree of approximation, from observable data. In concept at least, the degree of vulnerability will exist on a spectrum.

The authors Reinhart and Rogoff, who wrote an influential book on financial crises, summed this up by saying that there are three 'zones of vulnerability' for a bank.

At one end of the scale you have the safe zone. This is where the bank is so safe that, even in a hypothetical panic, there's no material risk of failure. If that's the case, it's not rational for any individual depositors to panic.

At the other extreme, a bank might be known to be at serious risk of insolvency even in a best case scenario. In that case, it's always rational for depositors to want their money back as fast as possible. The bank fails. Both of those two cases have a clear outcome.

The interesting case is the one in the middle. This is a bank that has positive capital value if it can hold its assets to maturity, but where a distress sale of assets would make the bank insolvent. In that case, there is more than one equilibrium:

- A **good** equilibrium where no one panics and the bank survives
- A **panic** equilibrium where an otherwise sound bank is rendered insolvent

It's this third case that is the interesting one modelled by Diamond and Dybvig.

So now we're in a position to see what I mean by the phrase **rational panic**. In this intermediate situation, it's rational for depositors to panic **if and only if** a critical mass of other depositors are panicking at the same time.

Predictability

This analysis tells us something important about the **predictability** of a crisis.

Historically, according to Reinhart and Rogoff, it's not particularly uncommon for banks, or even whole financial systems, to be situated in the intermediate zone. As noted, that's not something that is directly observable, but it's an inference they draw from historical experience.

When that situation exists, it means a crisis **can** happen, but only if or when there's some triggering event that sparks a collective panic.

We can't rationally model that.

In my lectures I often use the analogy of an unexploded bomb – think of some explosive device left over from wartime that was never detected or disposed of. It might go off if some random event triggers it, but we'll never predict the timing. Or, if it's left undisturbed, it might fizzle out and never go off.

Bernanke, in his later commentary on the GFC, made a similar point using the analogy of a bushfire. To have a serious fire disaster there needs to be enough **dry tinder** and **fuel** to create the vulnerability. But you also need the random **spark** that sets it off. That spark may or may not materialise. And if it does, the timing won't be predictable. It could be, literally, a lightning strike.

The implication, then, is that we can to some extent observe crisis **vulnerability,** but we can't reliably predict the **crisis itself**.

That's one reason why policy agencies like the IMF or the OECD have such a poor track record of predicting crises. In many cases, they're just inherently unpredictable.

And there's also a second problem – the very real risk that an official agency might spark a crisis by predicting one. The prediction becomes the spark. That's why our official agencies have to be so careful with language. To go back to the bushfire analogy: if a fire does break out, they don't want to be caught lurking nearby with a box of matches.

Why it matters

That explains why banks are vulnerable.

But we can ask the further question: why does it matter?

All firms are vulnerable to some degree. Risk-taking is a normal part of doing business. Why should we have a special concern for the vulnerability of banks?

This is where Bernanke comes in.

Diamond and Dybvig were both theorists. Bernanke was cited by the Nobel Committee for his **empirical** work – particularly his 1983 study of the Great Depression in the United States.

In that study, Bernanke asked two related questions:

- First, why was the Great Depression so much more severe than other business cycle events, either before or since?
- And second, what was the role of the financial sector in generating that outcome?

Based on the evidence that he put together, Bernanke came up with some important conclusions:

- Conditions during the early stages of the Depression looked similar to what happened in other business cycle recessions
- That being the case, there must have been some **additional** factor that turned a recession into a depression
- That factor was the emergence of widespread **bank failures**
- Bank failures were not just a **symptom** of the Great Depression. They were an independent **propagating force**, because of the way that contagion and panic could spread from one bank to another.

This is why banks matter.

I said before that banks are in the maturity transformation business, and that's true as far as it goes. But they are also in the **trust** business. This is very important. Banks embody an accumulation of business relationships, credit information and proven reliability that allows them to function as **trusted intermediaries**.

To put it another way, the trust embodied in a bank represents a form of **social capital** that can't be easily replaced when a bank fails. That's why bank failures are so damaging, even though, as noted, we're talking about a sector that manages a set of claims that net to zero.

In a wider historical study, Reinhart and Rogoff came to the same conclusion. Historically, they found that financial recessions are typically deeper and longer than business cycles driven by conventional supply and demand shocks.

Bernanke and the GFC

Bernanke was cited by the Nobel Committee mainly for his academic work in the early 1980s.

It's fair to say, though, that he's made a bigger impact as a policymaker than as an academic.

He was first appointed to the Federal Reserve Board in 2002, and became Chairman of the Fed in 2006, not long before the outbreak of the GFC. So he was in the right place at the right time to have a major influence on the policy response to the crisis.

His book *Firefighting*, co-authored with the Treasury Secretaries from that period and published in 2019, is an extended defence of the approach that was taken to mitigate the worst effects of the crisis.

The book was partly an explanation for why the crisis wasn't accurately predicted, for the reasons I've already talked about.

But mainly it was a defence against a populist critique that said the authorities **did too much** to prop up ailing banks. Government funds were used to recapitalise banks. The Fed made extensive use of its lender of last resort facility. Failing institutions were rescued. These things were politically unpopular.

What Bernanke understood from the financial history and theory I've been describing was that a financial panic can be both **rational** and at least in some cases, with the right policy intervention, **avoidable. Governments and central banks can do things in a crisis that make it rational for people to stop panicking.**

His approach to dealing with a financial crisis like the GFC can be summed up in a few propositions:

- Bank failures are costly
- Avoidable panics should be avoided
- In responding to a crisis, it's better to do too much than too little
- Put out the fire before you start lecturing people about fire safety

The crisis was a fast-moving series of events, and a lot of decisions had to be made on the run. Not every intervention worked.

But after the event, Bernanke was able to make two observations that seemed to vindicate the overall approach taken:

- First, the financial distress seen during the early stages of the GFC was at least as bad as in the opening phase of the Great Depression. Yet, another great depression was avoided. So that's an indicator of relative success.

- Second, the public funds that were used to support the system during the GFC ended up yielding a **net profit** to the government. Assets that were bought by the government were eventually re-sold at a profit. Emergency loans were repaid to the authorities with penalty interest.

How were those results possible? Because the interventions had the intended effect of **stopping avoidable panics**.

Obviously, there's a political element to this debate. The strongest criticisms tended to come from the right rather than the left – that is, from a non-interventionist perspective. Not everyone will agree with the approach that was taken.

What, I think, we **can** agree on is that the work of our Nobel prize winners was highly relevant, and it had a big impact on the crisis response when the decisions had to be made.