

# What Should You Do During a Ba...n\_ Professor Peck Gives Advice

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## SPEAKERS

Janet Box-Steffensmeier, James Peck, David Staley, Eva Dale

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- E** Eva Dale 00:00  
From the heart of the Ohio State University on the Oval, this is Voices of Excellence from the College of Arts and Sciences with your host, David Staley. Voices focuses on the innovative work being done by faculty and staff in the College of Arts and Sciences at The Ohio State University. From departments as wide ranging as art, astronomy, chemistry and biochemistry, physics, emergent materials, mathematics and languages, among many others, the college always has something great happening. Join us to find out what's new now.
- D** David Staley 00:32  
Jim Peck is Professor and Interim Chair of the Department of Economics at The Ohio State University College of the Arts and Sciences. He is an Associate Editor of the Journal of Economic Theory and has served as Guest Editor for an issue of Games and Economic Behavior. In 2011, he was named a Joan N. Huber Faculty Fellow of the College of Social and Behavioral Sciences. His current research focuses on the timing of transactions on markets. Welcome to Voices, Dr. Peck.
- J** James Peck 01:00  
Thank you, David.
- D** David Staley 01:01  
Your research focuses on bank runs, and I wonder if you first might begin by defining what a bank run is?

J James Peck 01:08

Sure. A bank run occurs if all of the depositors seek to withdraw their money from the bank, not necessarily because they need the money right then, but because they're worried that if they don't withdraw, there won't be any money left for them later on.

D David Staley 01:24

So, how have economists previously studied bank runs? That is, how does your work contrast with these earlier efforts to understand bank runs?

J James Peck 01:33

Okay, well, let's... first, I should describe the classic seminal paper by Diamond and Dybvig, and that's going to take a little bit of time.

D David Staley 01:40

That's fine, yes.

J James Peck 01:41

So in that model, they simplify the world into three time periods. In period zero, the consumers deposit their money in the bank, and the banks invest their money. The investment, if it's held to maturity in period two, it yields very high return. If it has to be liquidated early in period one, then, let's say there's no return. So the problem is that some of the consumers will turn out to be impatient, in other words, they are going to need their money in period one. Other consumers are patient, and they could withdraw in either period one or period two. So, the bank essentially offers insurance against being impatient. What they do is they tell the impatient people, if you turn out to be impatient, we'll give you more than the dollar that you deposited. If you turn out to be patient, you're gonna get even more still, but less than what you would have gotten if you gotten the full return on the investment. So because the impatient people get less consumption, less utility, what the bank's role is, is to provide this insurance. The problem arises if everyone decides to panic, thinking that there's a run. Let's say the optimal contract provides the impatient people with \$1.25. Well, that means every time an impatient person shows up, the bank has to liquidate more than the full dollar that consumer deposited, but a \$1.25. And if everyone shows up early, there's simply nothing left for the patient people, and the patient people knowing that, join the run.

D David Staley 03:19

Become impatient.

J James Peck 03:20

They become impatient, that's the basic Diamond and Dybvig story. In the Diamond-Dybvig setup, there is a fix that you could do to avoid the run problem. What the bank could do is what we call suspend convertibility. So if the bank, after a certain number of people show up, they close the window and say, no more withdrawals - although this would be sort of a terrible thing if you showed up after the window closed - the point is that provides the incentive for the patient people not to run, not to join the run, because they know that there will be enough resources for them to make it worthwhile to wait. So that avoids the run problem and at no loss of efficiency, because it's only the run that would cause the need to close the window in the first place. So where Karl Shell and I come in, is we complicate the model a little bit. Suppose the banks don't know what the fraction of impatient people will be: then, the optimal contract is a little bit more complicated, right? If there are a lot of impatient people, you need to liquidate a lot. If there are few impatient people, you don't have to liquidate as much. And the optimal contract has this pattern of withdrawals, the first person to withdraw might get a lot, the second person a little less, third person a little less. And it turns out in that setting, what I showed, along with my co-author, is that the optimal contract that provides the best insurance may necessarily be subjected to a run threat as well. You're sort of suspending convertibility a little at a time, but it doesn't help prevent this run problem.

D David Staley 04:58

Well, that raises all kinds of interesting questions. What does that suggest about the inherent possibility of a bank run, I suppose at any given moment, I mean, it sounds like a situation that could erupt at any moment for any sort of cause?

J James Peck 05:11

Well, so it is an issue. If you thought, or if the bank thought, or if we see a pattern of runs occurring all the time, then we may have to abandon this most efficient kind of insurance opportunity, because there are things the bank could do to prevent there being a run, from being consistent with equilibrium rational behavior. So, the run issue would only arise if they were very, very infrequent and rare.

D David Staley 05:38

And so, I know, in the real world, for instance, there's federal deposit insurance, presumably that's something that helps to calm the possibility of a bank run?

J James Peck 05:48

That's, that's a bit of a controversial issue in this literature.

D David Staley 05:53

That's a bit of a controversial issue in this literature.

Then I will raise the controversy.

**J** James Peck 05:56

In their original paper, Diamond and Dybvig talked about deposit insurance as a way of eliminating a run from occurring. And that would be the case if the so-called impatient people were okay receiving their money a little bit later, right, because the way that deposit insurance works is you see the total number of people who withdraw, and at that point, you allocate your consumption to the people that want to withdraw. The literature has this notion of a sequential service constraint, where the first person to withdraw needs that money and needs that money right away. So, deposit insurance isn't going to be effective for that kind of a setting, where the consumption has to be provided immediately. So, it's a question of interpretation of what this model is really about. And if you take it seriously that there is a sequential service constraint where when you require money, you require money, maybe you write a check and it has to get cleared, that kind of thing, then the pause insurance is not going to help the problem.

**D** David Staley 07:06

And to be clear, the issue is not that there is a impatient person or depositor, that there's lots of impatient, that's when we get a bank run, when there's lots of impatient people.

**J** James Peck 07:16

Well, I would draw a distinction between the truly impatient people that need, have a demand for liquidity, they need, they have an opportunity to consume, they simply need their money in period one versus the patient people that join a run out of fear that they won't get their money later. So they are patient, and yet anxious to join the run.

**D** David Staley 07:41

Maybe we've already sort of danced around this, but what are the conditions that... I mean, we understand what causes a run, it has to do with the sort of crush of impatient people. What are the sort of underlying causes of formerly patient people becoming impatient? I guess I'm trying to understand the the root causes of bank runs, and can that be predicted?

**J** James Peck 08:01

I don't know how to predict something like that. So this Diamond&Dybvig setting is one in which there's literally nothing that causes this panic to arise, it is a self-fulfilling prophecy. Of course, in the real world, you have other issues that banks may face, possibly that investment return that we said was so great, maybe there's something wrong with the bank's investments, and there may be some truly fundamental reason why the bank may be unable to provide the consumption that was promised. So, certainly that's true in the real world, and if you look at

actual bank failures, that's probably most of the time what you see. The beauty of the Diamond's "Dybvig setting is it shows that even if none of those other phenomena are there, the system may still be somewhat fragile.

**D** David Staley 08:54  
Define fragile.

**J** James Peck 08:55  
Oh, just fragile meaning that there's the possibility of this sort of second kind of equilibrium behavior, the self-fulfilling panic or bank run.

**D** David Staley 09:08  
Can fragility be measured, or can we assign a number to that for purposes of such a model?

**J** James Peck 09:15  
Possibly. I mean, in my paper with Karl Shell, we define what we call a propensity to run, so that's the probability with which people would start a run if this run phenomenon is consistent with rational behavior. So, it's not something we can sort of measure or predict it's a, for us, a parameter of our model.

**D** David Staley 09:38  
So I don't know if you or others who work in this area that, you were talking about considerations the real world for instance - do you or to others examine the history of previous bank runs as a way to think about or influence these theories?

**J** James Peck 09:52  
So my work in this topic is very theoretical. I published my main paper with Karl Shell in the Journal of Political Economy, this was in 2003. And at that time, there hadn't been a bank run since maybe the Great Depression. So we were exploring it, we weren't looking at historical bank runs, we were just looking at this need for banks to provide mutual insurance and examining the possibility of this fragility, so we really weren't looking at historical runs. Since then, of course, there have been some runs. The Bear Stearns failure can be really thought of as like a bank run, Northern Rock in the UK, these are both in 2007, and arguably Washington Mutual in 2008; these can be thought of as bank runs.

**D** David Staley 10:45

You've also written in the past on price bubbles, tell us a little bit about this research.

**J** James Peck 10:51

Sure, a price bubble is an asset whose price exceeds what the fundamental value of that asset would be. So for example, a stock might provide periodic dividends, and if you look at the present discounted value of the dividend stream, that would be what you call the fundamental value of the asset. If the price of the asset is above that, then that difference would be called the price bubble, the bubble component. So, my dissertation was about price bubbles. We looked at, or I looked at a model of behavior over time, where consumers were saving some in their youth and then spending more in their old age, and we had this overlapping generation setting. And the asset that was connecting generation to generation was a money, a fiat money. But, you could also interpret that as many other kinds of institutions like debt or what have you. And in that setting, you can get prices of this asset fluctuating over time and exceeding the fundamental value, the fundamental value of this asset in my dissertation was zero. A fiat money has no intrinsic value to it.

**D** David Staley 12:06

Fiat money, give us a quick definition?

**J** James Peck 12:08

Oh, it's just like dollars, like government...

**D** David Staley 12:11

Like the cash I'm carrying in my wallet.

**J** James Peck 12:12

Yeah, that's a fiat money, it's not backed by gold or anything like that. So if you look at the dividends that that will provide over time, it's zero. And yet, obviously, it has a positive value in the economy, so you can interpret that possibly as a bubble. So bubbles aren't necessarily a bad thing, but the point is that they could fluctuate around. So for example, a stock, even if you knew the fundamental value of the stock was \$100, it could sell for \$200. Why would anyone pay \$200 when the fundamental's only 100? Because the next period, when you sell it, you can sell it for \$200. So this is another sort of self fulfilling prophecy that could make the value of the asset above its fundamental value, and no one ever loses.

**J** Janet Box-Steffensmeier 13:00

I'm Janet Box-Steffensmeier, Interim Executive Dean and Vice Provost for the Ohio State University College of Arts and Sciences. Did you know that 23 of our programs are nationally

ranked as top 25 programs with more than ten of them in the top ten? That's why we say the College of Arts and Sciences is the intellectual and academic core of the Ohio State University. Learn more about the college at [artsandsciences.osu.edu](http://artsandsciences.osu.edu).

D

David Staley 13:25

You've also done work on resale price maintenance. First of all, tell us what that means and then tell us what your research entailed.

J

James Peck 13:32

Okay, sure. So, resale price maintenance is a situation where a manufacturer sells its product through retailers and the retailers then sell to final consumers. A resale price maintenance occurs if the manufacturer sets a resale price, a minimum resale price, and directs the retailers to not undercut that price. So that's what resale price maintenance is about. Why would manufacturers want to do this? 100 years ago, plus, the prevailing view was this is an imperfectly competitive situation, that the manufacturer is allowing the retailers to form a cartel and set their retail prices above what competition would yield. That idea has been widely debunked, and so the question emerges, well, why might manufacturers want to do this? One story, the old story, maybe 50 years old, is about free rideable services. So let's say I'm a furniture manufacturer and I want my furniture available to be viewed in showrooms, and to provide that showroom and the expert salesman to explain the furniture and so on, that requires costs, and therefore the manufacturer might set a wholesale price that's below what they want the resale price to be. So that pays for those important services that are being offered. The problem is that absent resale price maintenance, absent the rule that says you can't undercut that price, what could happen is I can go to the nice furniture showroom and see the furniture, and then I'll go to the discount guy that doesn't even have a showroom and pay a lower price. And if faced with that sort of competition, no one can afford to offer those services, which hurts the manufacturer. That was the 50 year old story, and that's a great story. But the problem is that sometimes resale price maintenance occurs in products where you don't need those services provided, for example, sugar, or Coca Cola. So the question is, well, why do you have it there? A lot of retailers would like to use products as loss leaders, you charge a low price, bring the customers in. The puzzle had been, why would manufacturers not like that? You think that if you can, if someone wants to sell your product at a lower price, but you're getting that wholesale price from them, why wouldn't you like that? So my work, along with Howard Marvel and Ray Deneckere, was to make the point, the argument that in a situation of demand uncertainty, resale price maintenance might ensure adequate inventories. In other words, if there was going to be a discount, or that was going to go in and offer your product for a lower price, then the full price retailers might not be willing to stock your product. If I have a little bit of time, I can talk about how this view played itself out in the courts, because, as I mentioned, 100 years ago, the view was that resale price maintenance was a cartelization, and it was viewed as, per se, illegal. In other words, if you engaged in resale price maintenance, that was a violation of the antitrust laws, and that view held for over 100 years. And it was, it was maybe about ten years ago that the Supreme Court overturned that, and now it's viewed on a case by case basis where resale price maintenance might be might be acceptable as a way of ensuring inventories. So, clearly, it helps the manufacturer, and what my work with Marvel and Deneckere showed is that it could also help the consumer by having that extra inventory out there.

**D** David Staley 17:19

To what degree was this change in the law, you'd mentioned the Supreme Court changing direction here, to what degree was this influenced by economic theories like yours?

**J** James Peck 17:28

Well, the Supreme Court decision cited my paper, so.

**D** David Staley 17:33

Well, there we go.

**J** James Peck 17:34

Actually, I should give most of the credit to Howard Marvel because he's Mr. Resale Price Maintenance. I've written a handful of papers on this topic, he really is very well known there. But the Supreme Court cited a bunch of his papers, including the one that I wrote along with Ray Deneckere and Howard.

**D** David Staley 17:51

So you're a theorist, but nevertheless, the work has practical implications. I wonder, and talking about your work on bank runs, what are the policy or the practical implications of this theoretical work?

**J** James Peck 18:03

So I guess if I had to talk about the practical or policy implications, I'd say that it may be the case that banking systems are inherently fragile. In order to achieve the greatest benefits, in this case of offering insurance against being impatient, that attempt to get the highest possible welfare may lead to the possibility of bad outcomes as well. And if you wanted to do what you had to do to avoid the, even the possibility of a bank run from occurring, you're going to be sacrificing some economic welfare.

**D** David Staley 18:39

Do you seek out that sort of practical or policy impact as part of your work as a scholar? Is that an expectation for an economist, that your work have that sort of impact?

**J** James Peck 18:50



Well, for an economic theorist, not necessarily. My work is fairly theoretical. But, of course, I'm motivated by real world markets and issues, so, I don't just create the next mathematical theory. I'm interested in markets, in the fact that on markets, there is asymmetric information, there's uncertainty, there's uncertainty about demand. And I'm interested in how that asymmetric information and demand and certainty plays itself out in terms of the efficiency of these markets, the timing of how people might transact, and so forth.

**D** David Staley 19:28

I'm really struck by, not just simply your work, but I think economists generally are studying a kind of behavior, they're certainly studying economic behavior. To what degree is economics starting to blend into psychology or is psychology starting to influence the work of economists since you both tend to work on behavior?

**J** James Peck 19:48

Behavioral economics is a huge field within economics. Traditionally, it has always been the rational economic man as the basis of theories, and I should say my theoretical work is very much in that historical, you know, sort of tradition of rational economic man. However, if you look at the way people actually behave, our baseline simple benchmarks of rational behavior don't seem to fit. So I've certainly been pulled into the behavioral economics realm by doing some experiments. And when you do experiments, you know that people are not going to behave the way the theories predict. But that's part of the point, is you have a baseline theory of fully rational behavior, and you look to see what are the departures when you run experiments? What are the departures, and how can we explain those departures? And maybe that could allow us to enhance our theories and take a step beyond the rational behavior.

**D** David Staley 20:49

What does an experiment mean in economics? I mean, I know how a chemist or a physicist does an experiment, how does an economist engage in experiments?

**J** James Peck 20:56

Well, there are natural experiments as well as lab experiments. So a natural experiment, you'd look and see how people behave in the world. So for example, just take a real simple example, we've got game shows. So the Jeopardy!, I can go and look at the historical behavior of all the Jeopardy! winners and how much they bet in the final Jeopardy question, and so forth, and try to study that behavior. A lab experiment is one where you really control the game. So you bring the students in, it's usually undergraduate students, you bring them into the lab, and explain the rules and have them play the games, and in economics experiments, you compensate them. So that would be an example of a lab experiment.

**D** David Staley 21:45

Can you tell us what's next for your research?

So, tell us what's next for your research.

**J** James Peck 21:47

So, I'm working on a few things, but one of the things I'm working on as an extension of this bank runs idea. I'm working with one of our students, Abolfazl Valipour, and he and I are taking the bank run model that I described earlier and we're adding a new feature that takes into account the fact that banks are not the only entities that are doing investments. So, we allow for consumers to deposit only part of their endowment with the bank, and they might directly invest the rest of their endowment and looking at the implications. And it turns out that when you build in this fact that there's outside investment out there, bank runs may be more of an issue than previously thought.

**D** David Staley 22:37

Jim Peck. Thank you.

**J** James Peck 22:39

My pleasure, thanks.

**E** Eva Dale 22:41

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