LECTURE 3.2

Fiscal Policy, and the Future of Macroeconomics

ECON42240 Advanced Macroeconomics

Sam Deegan
University College Dublin

Spring 2027

Where We Are

1. Time Series Methods

1.1 Time Series and Macro

1.2 Vector Autoregressions

1.3 VARs: Applications

1.4 The Kalman Filter

1.5 Solving RE Models

2. Structural Models

2.1 The RBC Model

2.2 The Phillips Curve

2.3 The New Keynesian Model

2.4 Estimating DSGE Models

2.5 The Smets-Wouters Model

3. Finance and Policy

3.1 Credit and Banking Crises

3.2 Fiscal Policy, and What Next

Last Week's Lecture

1. **Credit Rationing.**
   Why the loan market need not clear.

2. **The Financial Accelerator.**
   How net worth amplifies a shock.

3. **Runs and Leverage.**
   Diamond–Dybvig, the credit squeeze, and bank leverage.

4. **Capital Regulation.**
   Capital ratios, risk weights and macro-prudential policy.

Lecture Plan

1. **Fiscal Policy.**
   Multipliers, debt, and Ricardian equivalence.

2. **After the Crisis.**
   What the field changed, and did not.

3. **What Is Still Missing.**
   Summers and Caballero on the core's limits.

4. **Verdicts on the Three Opening Claims.**
   Lecture 1.1's claims, judged against the critics.

SECTION 1

Fiscal Policy

Four Fiscal Questions the Autumn Module Left Open

ECON42550 settled consumption and taxation; four questions remain for today:

1. **The Debt Recursion.**
   How the debt ratio evolves, and what holds it steady.

2. **Equivalence as a Property.**
   Why Lecture 2.3's model is Ricardian by construction.

3. **The Multiplier at the Bound.**
   Why the zero lower bound raises the multiplier.

4. **The Response After 2020.**
   Fiscal policy at a scale the older notes predate.

The Government's Flow Constraint

Nominal debt (B_t) grows with interest and falls with the primary surplus:

$$B_t = (1 + i)\, B_{t-1} - s_t P_t Y_t \tag{1}$$

where:

- i: nominal rate on debt
- s_t: primary surplus over GDP

> **A Primary Balance Leaves Out Interest**
> Revenue less non-interest spending.

Interest Raises the Debt Ratio and Growth Lowers It

Dividing by nominal GDP ($P_t Y_t$) gives the debt ratio (b_t), to first order:

$$\Delta b_t = \underbrace{(r - g)}_{\text{real rate on debt net of real growth}} b_{t-1} \; - \; s_t \tag{2}$$

Exact Only at Low Inflation
The approximation drops products of small rates, such as inflation times growth.

The Surplus That Stabilises the Ratio

The ratio holds steady when the primary surplus equals $(r - g)\, b_{t-1}$:

- **Interest Above Growth:** A surplus is required, rising with the debt already owed.
- **Growth Above Interest:** A primary deficit below $(g - r)b_{t-1}$ still lowers the ratio.

> **Two Rates and One Balance Govern the Ratio**
> No debt threshold appears in the arithmetic. Whether r stays below g is disputed (Blanchard, 2019).

Gross Debt in Ireland and the Euro Area

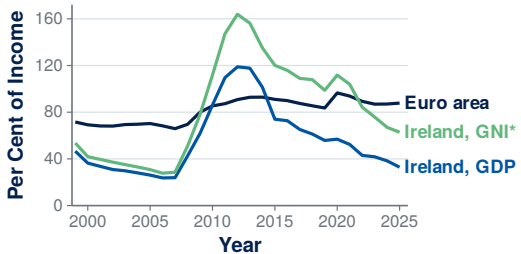

Figure 1: Gross government debt: Ireland over GDP and GNI*, euro area over GDP, 1999–2025.

> **Ireland's 2015 Fall Is Partly the Denominator**
> In 2015 Ireland's ratio falls 27 points on GDP and 15 on GNI*. The GDP jump accounts for the gap.

Primary Balances Through Two Crises

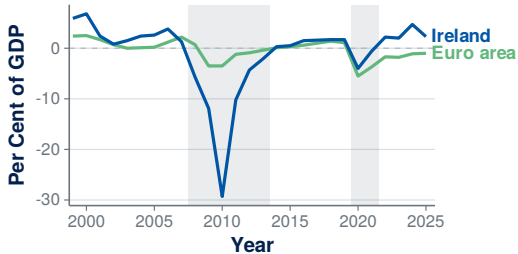

Figure 2: Primary balance, per cent of GDP, Ireland and the euro area, 1999–2025, crises shaded.

> **Ireland's 2010 Trough Is a One-Off Transfer**
> The euro-area balance falls to −3.5 per cent in 2009 and −5.5 in 2020. Ireland's 2010 trough includes bank recapitalisations of 21 per cent of GDP.

Sustainability Is a Forecast, Not a Threshold

Sustainability needs forecasts of r, g and the primary balance, all contested:

> **Debt Sustainability Is a Property of a Path**
> Debt is sustainable if its projected ratio stabilises. Any claimed debt threshold hides a forecast of $r - g$.

A stress test varies the three paths together and reports the range.

Two Budget Constraints at One Interest Rate

In present value, household consumption (C_1, C_2) equals income (Y_1, Y_2) net of lump-sum taxes (τ_1, τ_2):

$$C_1 + \frac{C_2}{1+r} = (Y_1 - \tau_1) + \frac{Y_2 - \tau_2}{1+r} \tag{3}$$

Starting and ending debt-free, government purchases (G_1, G_2) equal those taxes in present value:

$$G_1 + \frac{G_2}{1+r} = \tau_1 + \frac{\tau_2}{1+r} \tag{4}$$

Taxes Drop Out of the Household's Constraint

Substituting the government's constraint into the household's cancels both tax terms:

$$C_1 + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} - \left(G_1 + \frac{G_2}{1+r}\right) \tag{5}$$

Only Purchases Enter the Household's Constraint
A debt-financed cut in τ_1 raises τ_2 by the same present value. The household saves the whole cut.

What Ricardian Equivalence Assumes

Ricardian equivalence says deficit-financed tax cuts leave consumption unchanged. Three assumptions carry it:

- **Lump-Sum Taxes:** The future tax bill does not depend on income or effort.
- **Unconstrained Borrowing:** Households borrow freely at the government's rate.
- **A Long Enough Horizon:** Households live long enough, or leave bequests they value.

> **Romer Expects It to Fail in Practice**
> Most households hold little wealth and spend predictable income. The result survives as a theoretical baseline (Romer, 2019).

The Model of Lecture 2.3 Is Ricardian by Construction

The New Keynesian model has one infinitely-lived household and only lump-sum taxes:

> **The Model Cannot Test Equivalence**
> All three assumptions hold in the model by design. A tax cut alone changes nothing there. Whether real households are Ricardian is a separate question.

Smets–Wouters (Lecture 2.5) has no fiscal rule, so tax timing cannot matter there either. The model's Euler equation holds no tax.

The Fiscal Multiplier, Defined

A fiscal multiplier is the change in output per euro of extra purchases. Every estimate makes three choices:

- **Which Instrument:** Purchases, transfers and tax cuts have different multipliers.
- **Over What Horizon:** The same quarter, one year out, or summed over several.
- **In Which State:** Recession or expansion, at the bound or away from it.

> **A Multiplier Is a Response, Not a Parameter**
> The fiscal multiplier is a ratio of two responses. No structural parameter equals it.

The Rule Keeps the Canonical Multiplier Small

Higher purchases raise output and inflation, and only the real rate then changes consumption:

- **The Policy Rate:** Lecture 2.3's rule raises the real rate, and consumption falls.
- **The Financing:** Taxes or bonds give one multiplier; the household is Ricardian.

> **No Tax Appears in the Euler Equation**
> Consumption changes only if the expected path of real rates changes.

The Bound Switches Off the Policy-Rate Channel

At the zero lower bound the policy rate holds at zero as inflation rises:

> **The Real Rate Falls Instead of Rising**
> Purchases expected to last raise expected inflation, which lowers the real rate. Consumption then rises.

The model gives a larger multiplier at the bound. Estimates of how much larger differ widely.

The Fiscal Response After 2020

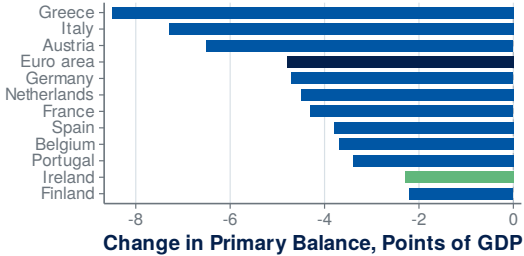

Figure 3: Primary balance change, 2019–2021, points of GDP: eleven members and the euro area.

> **Every Economy Shown Loosened Between 2019 and 2021**
> The loosening runs from 2.2 points of GDP in Finland to 8.5 in Greece. Ireland's, at 2.3 points, is the second smallest.

Automatic Stabilisers Need No Decision

Tax receipts fall and transfers rise as output falls, with no new legislation:

- **Why the Lags Matter:** Discretionary measures can arrive after the recession ends.
- **What Sets Their Size:** The progressivity of taxation and the coverage of benefits.

> **An Automatic Stabiliser Acts Without a Decision**
> An automatic stabiliser is a fiscal response written into existing law. The response needs no vote, design or implementation.

Which Fiscal Rule Would You Write?

A rule creates room in bad times only by binding in good ones.

> **Question**
> Write one fiscal rule for Ireland. What does it target, and what happens in the year it is breached?

Take answers from the room.

SECTION 2

After the Crisis

Two IMF Papers on What 2008 Taught

Blanchard, Dell'Ariccia and Mauro wrote twice after the crisis:

- **The 2010 Paper:** An overview of the lessons learned (Blanchard et al., 2010).
- **The 2013 Paper:** The same lessons, applied to each policy area (Blanchard et al., 2013).
- **Why the Authors Matter:** Blanchard was the IMF's chief economist then.

One Target: Stable Inflation

Before 2008 the consensus gave policy one target, stable inflation, for two reasons:

"This was the result of a coincidence between the reputational need of central bankers to focus on inflation rather than activity … and the intellectual support for inflation targeting provided by the New Keynesian model."

> **The Target Came from a Model This Module Built**
> The intellectual support named here is Lecture 2.3's optimal-policy result.

Fiscal Policy Was Written Out

The pre-crisis consensus gave fiscal policy a limited role, on two grounds:

"wide skepticism about the effects of fiscal policy, itself largely based on Ricardian equivalence arguments … lags in the design and the implementation of fiscal policy, together with the short length of recessions, implied that fiscal measures were likely to come too late."

Today's first section derived both grounds: Ricardian equivalence and the lags.

Regulation Sat Outside Macroeconomics

Three more pre-crisis beliefs closed the list, including Lecture 1.1's Great Moderation:

- **Financial Regulation:** Not a macroeconomic policy tool, and *"largely ignored"*.
- **The Great Moderation:** Better policy had delivered *"higher economic stability"*.
- **Low Inflation:** Two per cent seemed cushion enough against small shocks.

> **Lecture 1.1 Left the Great Moderation Unsettled**
> Lecture 1.1 asked whether smaller shocks or weaker propagation caused the moderation. Lesson six returns to that question.

Stable Inflation Was Not Enough

The first lesson is that a stable target permits a build-up elsewhere:

"both inflation and the output gap may be stable, but the behavior of some asset prices and credit aggregates, or the composition of output, may be undesirable … and potentially trigger major macroeconomic adjustments later on."

A Stable Gap Was Read as a Healthy Economy

The output gap is a model output. The model producing it had no financial sector. Lecture 1.1 made that claim.

Low Inflation Left No Room

Lesson two: a low inflation target leaves the policy rate little room to cut:

"the zero nominal interest rate bound has proven costly. Higher average inflation … would have made it possible to cut interest rates more."

Policy Rates Sat at the Bound for a Decade

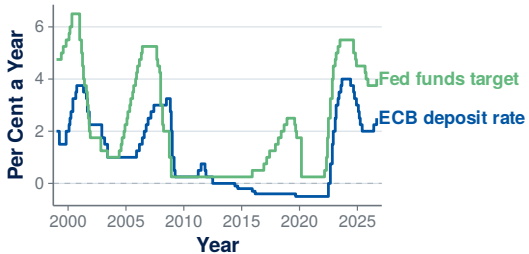

Figure 4: ECB deposit rate and US federal funds target, per cent, month end, 1999–2026.

> **A Decade at the Floor, Then the Fastest Rise**
> The ECB deposit rate sits at or below zero from 2012 to 2022. Its rise after 2022 is the fastest in the sample.

Financial Intermediation Broke the Arbitrage

The third lesson applies during crises, when one rate stops reaching every asset:

"rates are no longer linked through arbitrage, and the policy rate is no longer a sufficient instrument for policy."

> **Lecture 3.1 Built This Mechanism**
> Credit frictions break the link between the policy rate and a borrower's rate.

Countercyclical Fiscal Policy Came Back

The fourth lesson reverses the pre-crisis position on fiscal policy:

"*to the extent that monetary policy had largely reached its limits, policymakers had little choice but to rely on fiscal policy … it was clear that fiscal stimulus would have ample time to yield a beneficial impact despite implementation lags.*"

Regulation Amplified the Shock

The fifth lesson names a pairing of rules that forced selling:

"Mark-to-market rules, when coupled with constant regulatory capital ratios, forced financial institutions to take dramatic measures to reduce their balance sheets, exacerbating fire sales and deleveraging."

> **A Capital Ratio Held Constant Forces Selling**
> Falling asset values cut capital. Holding the ratio fixed then requires shrinking the balance sheet.

The Great Moderation, Re-Read

The sixth lesson asks whether the moderation itself raised the cost of 2008:

"It may even be that success in responding to standard demand and supply shocks, and in moderating fluctuations, was in part responsible for the larger effects of the financial shocks in this crisis."

A Third Answer: Stability Changed Behaviour

The moderation led many, regulators included, to understate risk. The positions taken and rules relaxed proved much riskier.

A Higher Target and a Second Instrument

The paper asks two questions about the target, then argues for a second instrument:

- **A Higher Target:** Are the net costs much higher at four per cent than at two?
- **Anchoring the Higher Target:** Is four per cent harder to anchor expectations at?
- **A Second Instrument:** *"The policy rate is a poor tool to deal with excess leverage."*

Liquidity Provision and Fiscal Space

The other two implications concern what a policymaker holds in reserve:

- **Broader Liquidity Provision:** Extending liquidity in normal times *"seems compelling"*.
- **Pricing the Provision:** Insurance fees and haircuts address part of the problem.
- **Fiscal Space:** *"A key lesson from the crisis is the desirability of fiscal space."*

> **Fiscal Space Mirrors Room to Cut Rates**
> The paper draws the analogy itself. Each kind of room is built in good times and spent in bad.

Twelve Questions the Granular Paper Leaves Open

The 2013 paper leaves twelve questions open; three span its three areas:

- **Targets:** Should central banks explicitly target activity, or financial stability?
- **Debt:** What are the dangers of high public debt, and how fast should it fall?
- **Macroprudential Tools:** Which exist, and how do they fit monetary policy?

Which Open Question Is Hardest?

The open questions differ in how far evidence could ever settle them.

> **Question**
> Pick the question you think is hardest to answer. What evidence would change your mind?

Take answers from the room.

SECTION 3

What Is Still Missing

Summers on the Scientific Illusion

Summers attacked econometric practice in 1991, long before the crisis (Summers, 1991):

- **What He Attacks:** Formal work applying theory to data with elaborate technique.
- **What He Defends:** Pragmatic empirical work, built on the opposite principles.

Summers Says Formal Econometrics Virtually Always Fails

Summers's abstract states the charge without a hedge:

"*It is argued that formal econometric work, where elaborate technique is used to apply theory to data or isolate the direction of causal relationships when they are not obvious a priori, virtually always fails.*"

> **The Charge Lands on This Module**
> Summers's charge names identification in Lectures 1.2 and 1.3, and estimation in 2.4.

Deep Parameters Against Pragmatic Work

Summers draws a line between two kinds of empirical research:

"Successful empirical research has been characterized by attempts to gauge the strength of associations rather than to estimate structural parameters . . . and the skillful use of carefully chosen natural experiments rather than sophisticated statistical technique to achieve identification."

> **A Deep Parameter Is Meant to Survive Policy**
> Deep parameters describe preferences and technology. Lecture 1.5 argued that only those survive the Lucas critique.

Summers Challenges Readers to Name One Deep Parameter

Summers turns the argument into a challenge that is hard to answer:

"*I invite the reader to try and identify a single instance in which a 'deep structural parameter' has been estimated in a way that has affected the profession's beliefs about the nature of preferences or production technologies.*"

Caballero on the Pretense of Knowledge

Caballero attacks from inside the field, and opens by conceding the obvious charge (Caballero, 2010):

"*The recent financial crisis has damaged the reputation of macroeconomics, largely for its inability to predict the impending financial and economic crisis. To be honest, this inability to predict does not concern me much.*"

Caballero Sets Prediction Aside

Severe crises are unpredictable almost by definition, or they would cause less distress. His charge concerns method.

The Core Confused Two Kinds of Precision

Caballero's charge is about what precision inside a model is taken to mean:

"its current core—by which I mainly mean the so-called dynamic stochastic general equilibrium approach—has become so mesmerized with its own internal logic that it has begun to confuse the precision it has achieved about its own world with the precision that it has about the real one."

He wants broad exploration, not fine-tuning at a local maximum.

The Periphery Chased What the Core Did Not

Caballero credits the field's periphery and then says where the credit stops:

"an enormous amount of work at the intersection of macroeconomics and corporate finance has been chasing many of the issues that played a central role during the current crisis … However, much of this literature belongs to the periphery of macroeconomics rather than to its core."

> **Lecture 3.1 Taught the Periphery**
> Credit rationing, the financial accelerator and bank runs belong to the literature named here.

Herding Turns a Short-Cut into Reality

Caballero describes a modelling convenience taken for a fact:

"by some strange herding process the core of macroeconomics seems to transform things that may have been useful modeling short-cuts into a part of a new and artificial 'reality,' and now suddenly everyone uses the same language, which in the next iteration gets confused with, and eventually replaces, reality."

Hayek warned of that "pretense of knowledge", and the phrase titles Caballero's paper (Hayek, 1974).

Quantities Right, Prices Wrong

Caballero grants the core a success and then names its limit:

"*these core models have managed to generate reasonable numbers for quantities during plain-vanilla, second-order business cycle fluctuations. However … while these models have been successful in matching some aggregate quantities, they have done much more poorly on prices.*"

> **Caballero Turns the Module's Test Around**
> *"But in what sense is it a good general equilibrium fit if the quantities are right but not the prices?"*

The Core Is Half-Goofy on Everything

Caballero contrasts how the two halves of the field use abstraction:

- **The Periphery:** *"uses abstraction to remove the inessential"*, and anchors its object.
- **The Rule He States:** Be as *"goofy"* as needed, but never on the issue addressed.
- **The Core:** Aimed *"for being only half-'goofy' on everything"*, anchoring nothing.

Caballero's examples: preferences and production functions representing nobody, and magic parameter values.

Does Caballero's Charge Land on This Module?

This module built its models inside the core Caballero describes.

> **Question**
> Name one assumption here that Caballero would call goofy on the issue addressed. What would replace it?

Take answers from the room.

SECTION 4

Verdicts on the Three Opening Claims

The Incremental Strategy May Have Overshot

Caballero anticipates the reply that the core will eventually absorb the periphery:

"I think this incremental strategy may well have overshot its peak and may lead us to a minimum rather than a maximum in terms of capturing realistic macroeconomic phenomena."

This Module Followed the Incremental Strategy

Lectures 2.1 to 2.5 built the core one friction at a time. Caballero says gradual progress hides what is being accepted.

Rational Expectations Cannot Survive the Assembly

Caballero's last argument concerns rational expectations, which every structural model here assumed:

"While it often makes sense to assume rational expectations for a limited application to isolate a particular mechanism . . . this assumption no longer makes sense once we assemble the whole model."

Lecture 1.5 defined rational expectations.

> **Local Rationality Is Not Model-Consistent Expectations**
> Agents are most probably nearly clueless about the statistics these models assume they know.

What Caballero Does Not Say

Caballero asks for broad exploration instead of fine-tuning, not for abandoning the core:

> **A Thoughtful Attack Is Not a Refutation**
> The periphery gives sensible but incomplete answers, in Caballero's own words. Nobody supplies the model that is both.

Whelan calls the paper well-written and thoughtful, and says to read the whole thing.

Two Kinds of Repair

Each model here replaced a failed one, and the replacements differ in kind:

- **A Progressive Repair:** Explains the failure and predicts evidence not yet observed.
- **A Degenerative Repair:** Absorbs the failure by naming it as a new shock.

> **A Repair Must Predict New Evidence**
> A cost-push shock fitted to an inflation surge names the surge. It explains nothing.

Claim One: Our Test Was Applied Too Leniently

Lecture 1.1 claimed that a model earns its keep by reproducing evidence it was never fitted to:

> **The Test Stands**
> Caballero does not dispute the test; he applies it harder. The module judged its models on quantities, not prices.

Widen the evidence set to prices before declaring a model successful.

QUANTITIES AND PRICES

Claim Two: Model Outputs Were Read as Measurements

Lecture 1.1 claimed that the trend, the shock and the gap are model outputs, not measurements:

- **What Was Observed:** Inflation stable, the measured output gap stable, both for years.
- **What Was Concluded:** The economy was healthy, and policy deserved the credit.
- **What Was Missing:** The model producing the gap contained no financial sector.

> **The Gap Was Read as a Measurement**
> Blanchard, Dell'Ariccia and Mauro hedge their sixth lesson. The stability may itself have raised the crisis's cost.

STABLE OUTPUT GAP **GREAT MODERATION**

Claim Three Is a Warning, Not a Research Programme

Lecture 1.1 claimed that what a model leaves out is where the next crisis arrives:

- **What Was Discharged:** 2008 arrived through the mechanism the models omitted.
- **What Is Not:** The next omission stays unknown until a crisis reveals it.

> **Adding the Missing Mechanism Is Caballero's Target**
> The incremental strategy may well have overshot its peak, Caballero says. Only the repair test remains usable.

INCREMENTAL STRATEGY

Where Would You Put the Next Crisis?

A model leaves out almost everything. Only some omissions matter.

> **Question**
> Name one thing every model in this module leaves out. What would make you believe it matters?

Take answers from the room.

Before the Final Examination

1. **Play:**
   Simulate the debt ratio under three paths for $r - g$, from today's recursion.

2. **Apply:**
   Revise for the open-book final. Work two past papers under timed conditions.

3. **Read:**
   Both Blanchard papers and Caballero, before the final (Blanchard et al., 2010, 2013; Caballero, 2010).

Next Comes the Final Examination

The final examination comes next, and three things go into it:

- **A Toolkit:** Identify shocks, recover what is unobserved, solve and estimate a model.
- **A Scoreboard:** Evidence built before the model, which the model never got to fit.
- **A Test:** Ask of every repair whether it predicts evidence not yet observed.

> **The Test Outlasts Every Model in the Module**
> Each model here will be replaced. The question asked of a replacement will not change.

Thank you

sam.deegan@ucdconnect.ie
sam-deegan.com

BACKUP

Appendix

Notation

Symbol	What it is	First met
B_t	nominal debt	The Government's Flow Constraint
i	nominal rate on debt	The Government's Flow Constraint
s_t	primary surplus over GDP	The Government's Flow Constraint
$P_t Y_t$	nominal GDP	Interest Raises the Debt Ratio and Growth Lowers It
b_t	debt ratio	Interest Raises the Debt Ratio and Growth Lowers It
$r - g$	real rate on debt net of real growth	Interest Raises the Debt Ratio and Growth Lowers It
r	real rate on debt	Interest Raises the Debt Ratio and Growth Lowers It
g	real growth	Interest Raises the Debt Ratio and Growth Lowers It
C_1, C_2	household consumption	Two Budget Constraints at One Interest Rate
Y_1, Y_2	income	Two Budget Constraints at One Interest Rate
τ_1, τ_2	lump-sum taxes	Two Budget Constraints at One Interest Rate
G_1, G_2	government purchases	Two Budget Constraints at One Interest Rate

References

Blanchard, O. (2019). Public debt and low interest rates. *American Economic Review*, *109*(4), 1197–1229. https://doi.org/10.1257/aer.109.4.1197

Blanchard, O., Dell'Ariccia, G., & Mauro, P. (2010). *Rethinking macroeconomic policy* (IMF Staff Position Note SPN/10/03). International Monetary Fund.

Blanchard, O., Dell'Ariccia, G., & Mauro, P. (2013). *Rethinking macroeconomic policy II: Getting granular* (IMF Staff Discussion Note SDN/13/03). International Monetary Fund.

Caballero, R. J. (2010). Macroeconomics after the crisis: Time to deal with the pretense-of-knowledge syndrome. *Journal of Economic Perspectives*, *24*(4), 85–102. https://doi.org/10.1257/jep.24.4.85

Hayek, F. A. von. (1974). *The pretence of knowledge*. https://www.nobelprize.org/prizes/economic-sciences/1974/hayek/lecture/

Romer, D. (2019). *Advanced macroeconomics* (5th ed.). McGraw-Hill Education.

Summers, L. H. (1991). The scientific illusion in empirical macroeconomics. *The Scandinavian Journal of Economics*, *93*(2).