Monopsony, Income Risk and R*-Multiplicity

By Federica Romei[1]

Abstract

We argue that policy can be an important determinant of R*, the interest rate that equates demand and supply for assets in the long run. In a model where higher asset supply increases households' income risk, multiple equilibria in asset markets may arise. Alongside an equilibrium with a high interest rate, low consumption risk, and low asset supply, there is also another equilibrium with a low interest rate, high consumption risk, and high asset supply. Empirical evidence suggests that the economy has operated around the latter equilibrium after the global financial crisis. In a world with multiple equilibria, policies such as asset purchase programmes eliminate the high interest rate equilibrium, and select the equilibrium with a low long-run interest rate.

1 Introduction

The equilibrium real interest rate that sustains output at potential and inflation at target is usually known as r*. An essential determinant of r* is the interest rate that equilibrates the assets' market in the long run, R*. Thus, we can think of R* as the long-run counterpart to r*.

Understanding the determinants of R* is crucial for shaping effective monetary policy strategies and clear communication. A conventional view in macroeconomics, the neo-classical synthesis, models the economy as new-Keynesian in the short run, and classical in the long run. According to this view, demand management through monetary policy is crucial to stabilize output at business-cycle frequency, but irrelevant at longer horizons. Hence, R* is determined by real forces, independent of monetary policy and other cyclical policies and shocks. Scholars refer to this relationship as the classical dichotomy. In this essay, we aim to challenge this view and propose a new perspective on the determination of R*. We demonstrate how, in a steady state of the economy, multiple stable equilibria for R* may exist, and how policies may play a crucial role in selecting one of the equilibria.

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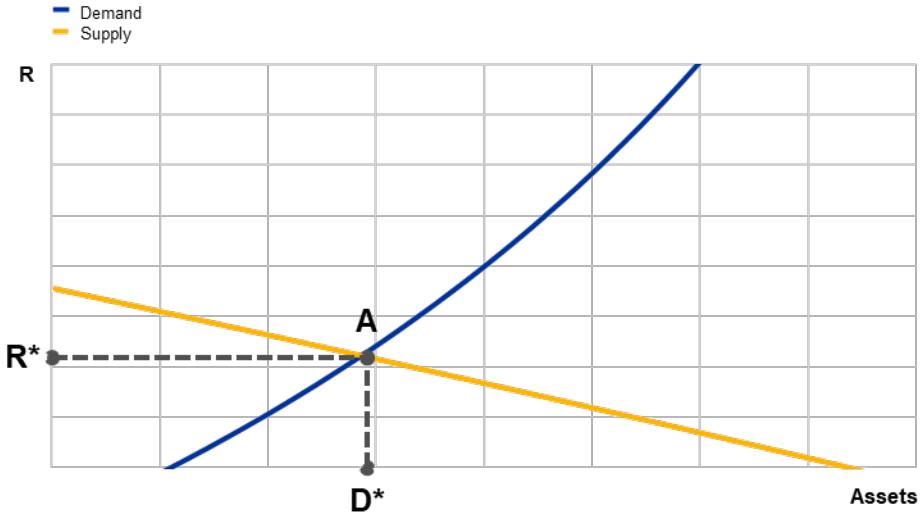
Chart 1

Demand and Supply of Assets in a Standard Model of R*



2 The standard model

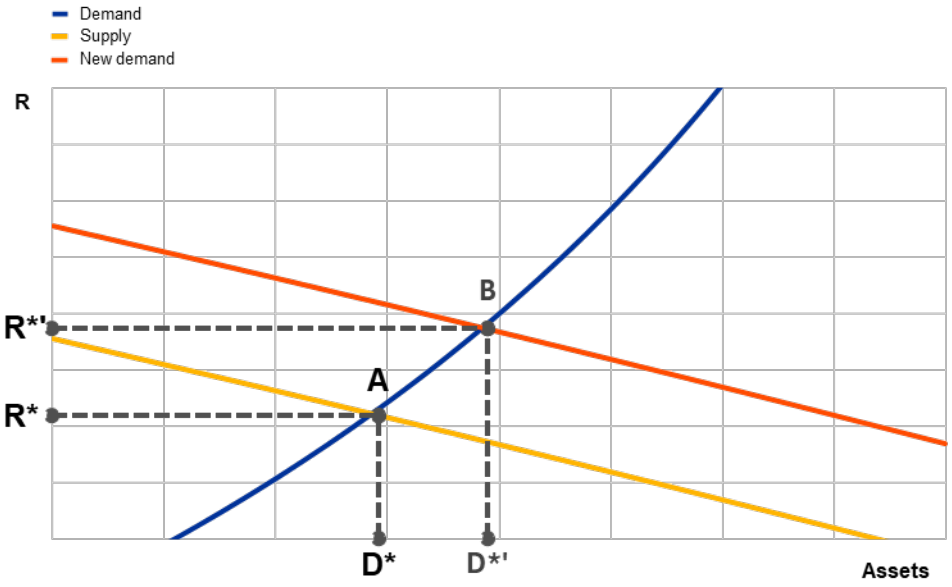
In a standard model, R* is determined by the intersection between the demand and supply of assets, as shown in Chart 1. Households demand assets, and their demand is positively sloped with respect to the interest rate: the higher the interest rate, the higher the amount of assets that households demand. The government and the corporate sector supply assets, and their supply is negatively sloped: the higher the interest rate, the lower the amount of assets they issue. The intersection point between demand and supply determines the interest rate, R* and the amount of assets, D*.

In the last few decades, R* has been very low, by historical standards. Some scholars attribute the low R* to an outward shift in the demand for assets, due to a change in demographics or inequality. Other scholars think that the low R* derives from an inward shift in the supply curve, due to low productivity growth.[2] Regardless of the causes, if the standard model here outlined is the appropriate representation of reality, an outward shift in the supply of assets should increase R*, as shown in Chart 2. An increase in corporate debt issuance shifts outward the supply curve and, according to the model, would be associated with an increase in R*. Do the data support this view? This is the empirical question that the next subsection addresses.

[2] Several scholars documented a shift in the demand or in the supply of assets. A non exhaustive list includes , Auclert et al. (2021), Benigno and Fornaro (2018), Carvalho et al. (2016), (2023), Cesa-Bianchi et al. (2023),Domeij. and Flodén (2006), Eggertsson et al. (2019), (2019), Mian et al.(2021).

Chart 2

Effect of a supply shift in standard model



3 Empirical evidence on the effect of increased supply

Chart 3 documents the impact on R* of an exogenous increase in firms' debt issuance.[3] For the subsample of the data ending in 2008, displayed in Panel A, the data support the theory that an outward shift in the asset supply curve (caused by higher corporate debt issuance) increases R*. However, a significant shift in this relationship occurred after 2008. An increase in firms' debt issuance, which previously was associated with an increase in R*, now leads to a drop in R*. Panel B of Chart 3 displays this relationship. This surprising finding challenges the view of the standard model. If R* falls after a positive shift in the supply of assets, demand must be negatively sloped in some region of the state space, at odds with the standard model. In the next section, we will propose a novel theory that can rationalise this observation and that challenges the conventional view on the relationship between short-run stabilisation policies and long-run interest rates.[4]

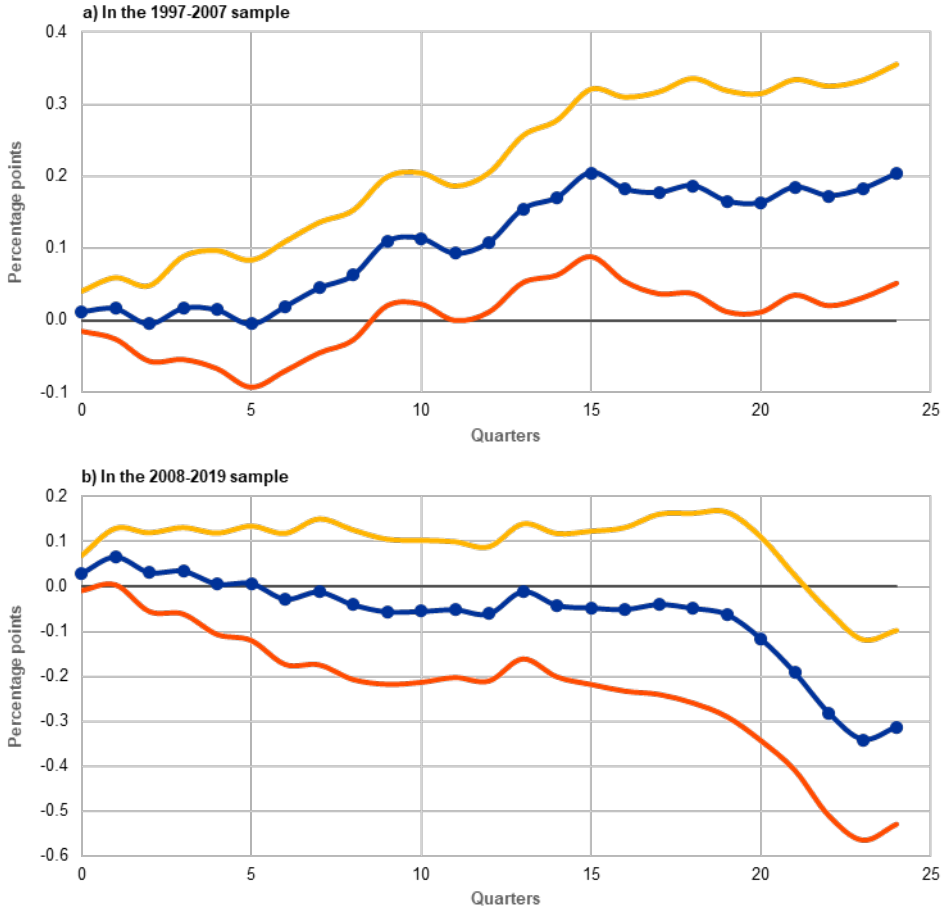
[3] Dynamic response of R* to an exogenous increase in firm debt identified using a granular instrumental variable approach (Gabaix and Koijen (2024)) in a local projection (Jorda, 2005) specification. The weights are computed with total assets. The local projection specification controls for one lag of the instrument, one lag of the dependent variable, and one lag of GDP growth and the VIX index.

[4] This chart is taken from the paper "Monopsony, Income Risk and R* Multiplicity" (Federica Romei, Ambrogio Cesa-Bianchi, Sergio de Ferra , Andrea Ferrero, Alex Kohlhas, Michael McMahon and Giovanni Rosso).

Chart 3

Empirical response of R* to corporate debt increases

(percentage points; quarters)



Sources: Compustat, Eikon Datastream, Del Negro et al. (2019), FRED.
Notes: Methodology is corporate debt granular instrumental variable in a local projection (Jorda,2005) specification.

4 Monopsony, income risk and R* multiplicity

4.1 The model

In a standard model of the economy, an increase in corporate debt issuance allows households to transfer resources from the present to the future, and to smooth out income fluctuations. Hence, an increase in the amount of debt issued by firms leads to an increase in R*, with a movement along households' asset demand. Chart 4a shows graphically this relationship, where an increase in D leads to an increase of R*, moving the economy from point A to point B.

In the paper "Monopsony, Income Risk and R* Multiplicity", we introduce a model that features a novel, additional mechanism. An increase in debt issuance can lead

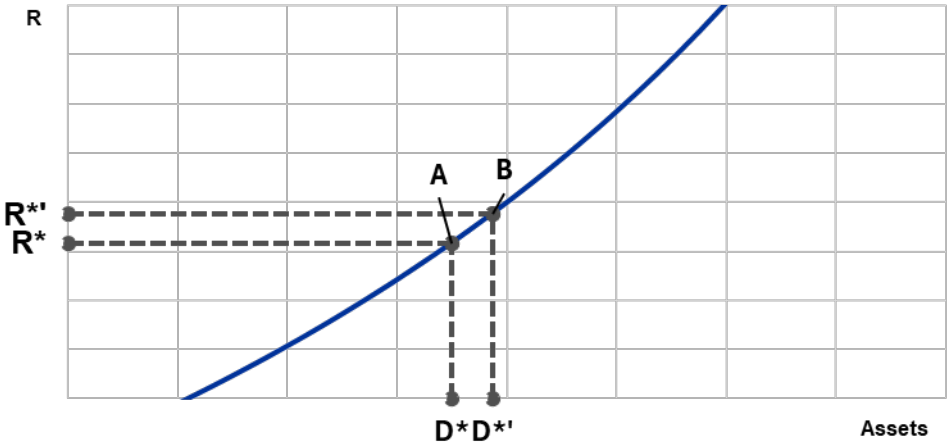
firms to increase the monopsonistic power they have vis-a-vis some workers and thus reduce the share of output that these workers earn.

Higher monopsonistic power by firms leads to an increase in households' income risk, if the degree of firms' monopsonistic power is not the same vis-a-vis all workers, and if workers face positive risk of entering a relationship with a firm where their market power is low. As households face higher income risk, they demand more assets, to smooth out fluctuations in income. The asset demand schedule thus shifts outward outwards. Chart 4b shows this second relationship. Hence, the equilibrium in the economy does not move to point B but to point C, where the interest rate may be lower.

Chart 4

Two mechanisms in response to increase in debt supply

a) Increase in debt issued increases R*



b) Increase in monopsony power and income risk reduce R*

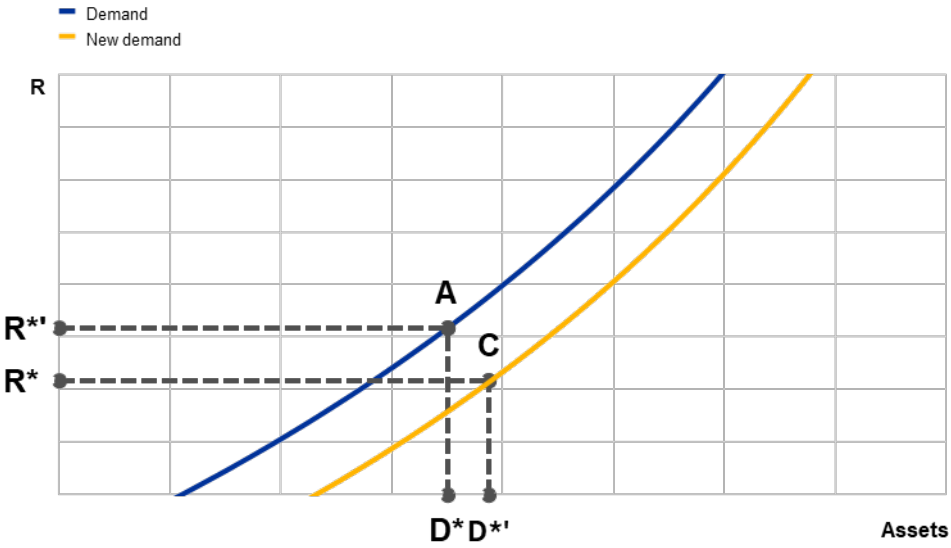
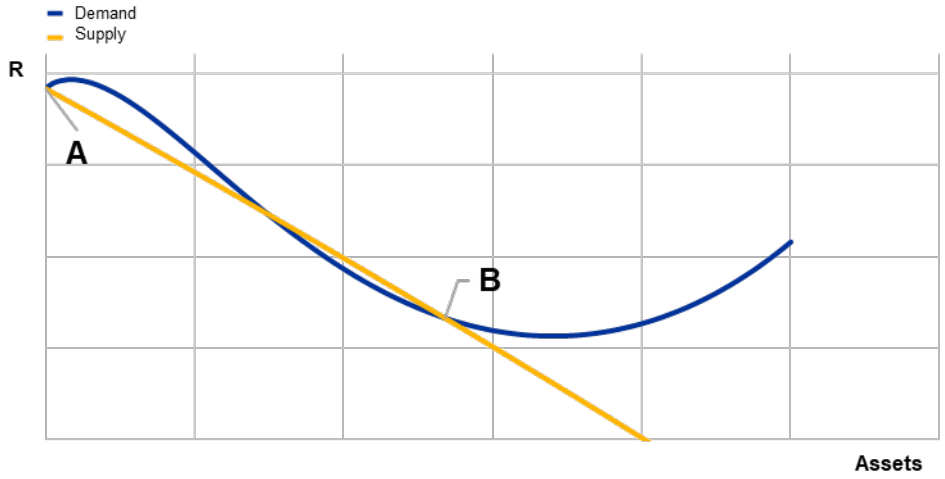


Chart 5

Downward sloping asset demand curve



In response to higher corporate debt issuance, R* increases if the dominant force is that of better insurance against households' income fluctuations. Instead, R* decreases if the higher income risk dominates. Therefore, asset demand can be positively sloped for some level of corporate debt and negatively sloped for others. Chart 5 shows this non-monotonic asset demand.[5]

In the same Chart, we plot the supply of assets. If the demand is negatively sloped in a part of the state space, two stable equilibria may emerge in a steady state. The economy can be at point A, where the interest rate is high, consumption risk is low, and firms have low monopsonistic power. The economy can also be at point B, where the interest rate is low, firms have high monopsonistic power, and consumption risk is high.

Now, we can rationalize our empirical results. Before 2007, the economy was well described by point A. Around this point, an outward shift in the asset supply curve if the supply of assets shifts, leads to an increase in R*. After 2008, the economy is better described by point B. Around this point, the same outward shift in the asset supply curve a positive asset supply shift now decreases R*.

The economy can be in either A or B if multiple equilibria exist in a steady state. Therefore, short-run shocks or policies may select the long-run equilibrium. In the next section, we will focus on one particular policy, the asset purchase programme, and we investigate its implication for the selection of the equilibrium in the economy.

4.2 Asset purchase programme

Suppose the government issues debt to buy corporate debt. When this is the case, income risk increases even if households hold zero corporate debt. If the

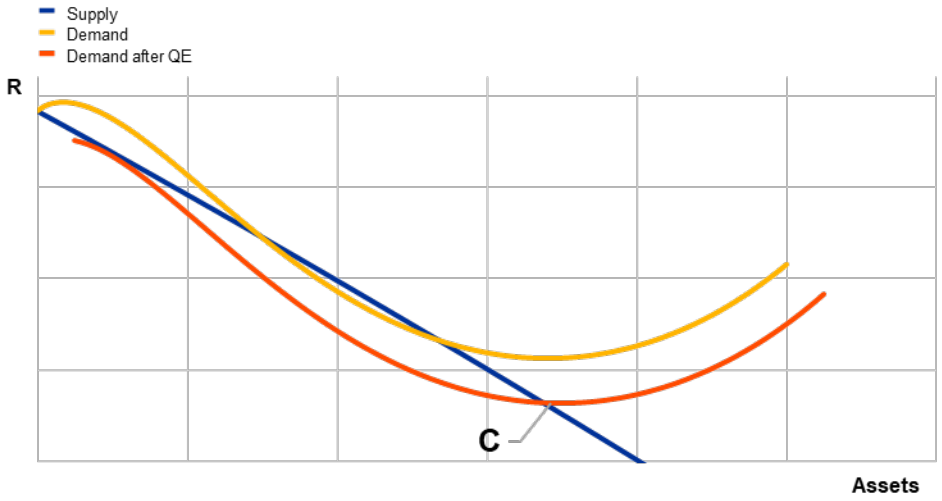
[5] The non-monotonicity of the curve is a by-product of the parameter values. Demand curve can also be monotonically increasing if the dominant force is that of better insurance.

government buys corporate debt, in the model firms can increase their monopsony power, even if households do not hold this corporate debt directly. Given the higher income risk, the asset demand shifts to the right. If the shift is big enough, as shown in Chart 6, in the steady state of the economy, only one equilibrium is possible. Therefore, an asset purchase programme can select one single equilibrium. In this case, the policy selects the equilibrium with high monopsony power, high consumption risk and low R*.

After 2008, many forces have been in place that could have implied a transition of the economy from point A to point B. The asset purchase programme is not the only one. However, this unconventional policy could have contributed to the transition from the high R* equilibrium to the low one.

Chart 6

Asset purchase programmes can select the equilibrium



5 Conclusion

The mainstream view sees R* as a product of long-term equilibrium between real forces that act on the economy. However, if multiple equilibria for the long-run R* exist, short-run shocks or policies may select one of these equilibria. Hence, it may be difficult for scholars to understand where R* is heading without a clear view of future policies. On the other hand, if this multiplicity of equilibria exists, policymakers can select long-run equilibria when setting policies to stabilise the business cycle. Thus, central banks may have greater power than is implied by the conventional models where the classical dichotomy holds. It is thus important to understand whether multiple equilibria in R* exist, and what their properties are: "With great power comes great responsibility" (Stan Lee, 1962).

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