



Do central banks affect Tobin's q ?

João Ricardo Faria ^a, André Varella Mollick ^b, Adolfo Sachsida ^c, Le Wang ^{d,*}

^a MPA Program, University of Texas at El Paso, USA

^b Department of Economics and Finance, University of Texas Pan-American, USA

^c IPEA, Brasília, Brazil

^d Department of Economics, University of New Hampshire, USA

ARTICLE INFO

Article history:

Received 4 October 2010

Received in revised form 3 August 2011

Accepted 4 August 2011

Available online 11 August 2011

JEL classification:

E31

E44

E58

Keywords:

Central bank

Tobin's q

U.S. Federal Reserve

ABSTRACT

Previous work has documented inflation effects on Tobin's q in the long run. This paper examines whether the FED's different policies and chairmen tenure have an impact on Tobin's q , after a modified stylized AD-AS model shows that central banks affect q . We do find changing responses of q depending on the pre-Volcker and post-Volcker periods.

© 2011 Elsevier Inc. All rights reserved.

1. Introduction

The stock market and investment are positively correlated (Morck, Schleifer, & Vishny, 1990). The accumulation of fixed capital responds to movements in the stock market. According to Black, Fraser, and Groenewold (2003) the ratio of stock market capitalisation to GDP more than tripled in 10 years up to the year 2000 – from 53.2% in 1990 to over 181% in 2000. They note that stock market not only increased relative to the real economy, but the relation between them has also strengthened. Most economists think of the relationship between the stock market and investment in terms of Tobin's q (Shapiro, 1990).

Tobin's q is the ratio of the market valuation of real capital assets to the current replacement cost of those assets (Tobin & Brainard, 1977).¹ For Tobin and Brainard (1990) q is not a real or financial variable but a hybrid variable, the ratio of a financial market price to a commodity market price. The q -theory of investment is a theory of investment that says that a q greater than one stimulates investment, i.e., when capital is valued more highly in the market than it costs to produce it, investment grows (Brainard & Tobin, 1968). For Tobin [(1969), p.29] the q -theory² allows monetary policies to affect aggregate demand by changing

* Corresponding author at: Department of Economics, University of New Hampshire, 15 College Road, Durham, NH 03824, USA. Tel.: +1 603 862 0818; fax: +1 603 862 3383.

E-mail address: Le.Wang@unh.edu (L. Wang).

¹ This ratio was previously called valuation ration, v , and defined as the relation of the market value of shares to the capital employed by the corporations (Kaldor, 1966; Reinhart, 1979).

² There are several q -theories of investment, as the neoclassical of Hayashi (1982), and the post-Keynesian of Crotty (1990). See also Palley (2001).

the valuations of physical assets relative to their replacement costs. In this sense it is implicit that central banks can affect Tobin's q , mainly through inflation,³ and ultimately, private investments and the accumulation of capital stock.

There is a large literature, mostly theoretical, that studies the effect of inflation on an economy's capital stock. The "Tobin effect" (Tobin, 1965, 1967) refers to the mechanism in which a higher inflation rate reduce the return of holding real money balances and lead agents to substitute out money and into physical capital. Thus increasing inflation results in higher capital accumulation. Sidrauski (1967) develops a dynamic model with real money balances in the utility function and shows that money is superneutral, i.e., inflation does not affect the real variables of the economy, including capital stock. Last, but not least, Stockman (1981) formulates a model in which agents face a cash-in-advance constraint, i.e., money is necessary in advance for the purchase of goods. In this model inflation is a tax on holdings of real money balances and, as a consequence, on capital stock.

Empirical results on the relation between inflation and investment and capital stock formation are ambiguous. De Gregorio (1993) estimates a negative impact of inflation on economic growth through its effects on investment. Fischer (1993) presents evidence that inflation negatively affects the formation of real capital stock. Barro (1995) finds that investment–GDP ratio is negatively related to inflation. Crosby and Otto (2000) empirical results show that capital stock is invariant to changes in the inflation rate.

One important channel through which inflation can affect investment and the formation of capital stock is the Tobin's q . Although the majority of the literature on Tobin's q does not address or consider the idea that inflation may affect Tobin's q , the literature ignores some issues indicated by Tobin and Brainard (1977) for explaining why inflation matters in practice. Anticipated inflation may affect Tobin's q through non-neutral taxes, and nominal interest rates that are fixed or controlled, while unanticipated inflation will have additional non-neutral effects. In addition, Tobin (1969) showed that there are theoretical reasons, through an extended LM curve, for the expected inflation rate to have a positive impact on q .

Faria and Mollick (2010) develop a theoretical model introducing Tobin's q in the IS-LM framework. In theory, the impact of actual inflation on Tobin's q can be either positive or negative. Faria and Mollick (2010) test the hypothesis with U.S. data from 1953 to 2000, and show that there is a negative (long run) impact of inflation on q , while adjusting fast in the short-run dynamics, and controlling for Schumpeterian innovations.⁴ An explanation for the negative impact of inflation on q lies on the nature of Tobin's q as a hybrid variable. Inflation impacts the financial market price differently from the commodity market price. Thereby inflation is non-neutral on Tobin's q .

This paper goes one step further than Faria and Mollick (2010). It assesses whether the Federal Reserve (FED) affects Tobin's q through monetary policy, and it tests, in particular, the effect of the FED chairmen on Tobin's q .

The role of FED Chairmen and FED's monetary policies are important to explain American inflation, and has been object of intense scrutiny. Sargent, Williams, and Zha (2006) find that American inflation results from an interaction between the monetary authority's beliefs [updated continuously] and economic shocks. The rise in inflation in the 1970s is attributed to shocks that changed the monetary authority's estimates and made it misperceive the tradeoff between inflation and unemployment.⁵ Blinder (1982), Hetzel (1998), and Mayer (1998) find that FED policy in the 1970s had a systematic tendency to translate adverse supply disturbances into persistent changes in the inflation rate. In the 1980s, according to Bomfim and Rudebusch (2000) and Orphanides and Wilcox (2002), the FED acted opportunistically to reduce inflation after favorable supply-side shocks. Another line of explanation, not necessarily opposed to the above, is the view that the FED is plagued by the time-consistency problems, as stressed by Ireland (1999), which explains its unwillingness to prevent inflation from rising after negative shocks and its capacity to reduce inflation after positive supply-side shocks. More recently, Ireland (2007) confirms Friedman's view that inflation is always and everywhere a monetary phenomenon, finding that the bulk of inflation's rise and fall is due to the FED policy.⁶

In the next section we present a stylized AD-AS model with Tobin's q , showing how the FED can affect Tobin's q . The empirical evidence is presented in Section 3. The concluding remarks appear in Section 4.

2. The model

The following model introduces Tobin's q into a stylized AD-AS model (e.g., Sorensen & Whitta-Jacobsen, 2005; Mankiw, 2009). Tobin's q is defined as the ratio of the market valuation of the capital goods, MV , to their replacement costs, V . If the expected earnings, E , are constant, then q is equivalent to the ratio of the marginal efficiency of capital, ρ , to the real rate of return of capital (real interest rate), r :

$$q_t = MV_t / V_t = (E / r_t) / (E / \rho) \Rightarrow q_t = \rho / r_t. \quad (1)$$

³ Inflation is an important variable in finance. For example, Munk, Sørensen, and Vinther (2004) explain the Samuelson puzzle (Samuelson, 1963), in which investment advisors recommend that younger investors should invest a higher fraction of wealth in stocks than should older investors, by controlling for inflation dynamics in portfolio choices. In another line of research, inflation is found to be one of the determinants of capital structure. For instance, Hatzinikolaou, Katsimbris, and Noulas (2002) find that inflation uncertainty exerts a strong negative effect on a firm's debt-to-equity ratio.

⁴ For Tobin and Brainard (1977) low and declining average q ratios are consistent with investment booms. This happens in periods in which new capital goods differ from existing capital goods render the old ones obsolete (Tobin & Golub, 1998).

⁵ Cogley and Sargent (2005) explain the apparent failure of FED taking care of the high inflation in the 1970s due to cautious behavior induced by model uncertainty.

⁶ Friedman wrote several articles in his Newsweek column criticizing the FED, see Meltzer (2010).

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات