The conventional and informational impacts of monetary policy on the IPO market

Adra, Samer

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The Conventional and Informational Impacts of Monetary Policy on the IPO Market

Abstract

This paper provides the first investigation of the exogenous monetary shocks' impact on the IPO market by using a high-frequency identification strategy. Contractionary shocks in the conventional sense trigger a decline in IPO activity. In contrast, contractionary shocks that convey positive economic information trigger a rise in IPO activity. Separating conventional monetary shocks from central bank information shocks allows a richer assessment of the monetary policy's influence on the IPO market.

Keyword: Monetary policy; Initial Public Offerings; Information shocks.

JEL Codes: E43, E44, E52, E58, G32.

1. Introduction

Initial Public Offerings (IPOs) remain common exit strategies for entrepreneurial firms (Celikyurt et al., 2010; Dambra et al., 2015; Kim and Ritter, 1999). Both surveys and empirical studies suggest that macroeconomic factors significantly influence the IPO decision (Brau and Fawcett, 2006; Tran and Jeon, 2011; Yung et al., 2008). In particular, the aggregate IPO activity displays a cyclical pattern as companies find it easier to go public during periods of economic expansion (Yung et al., 2008) and high stock market valuation (Lowry, 2003). This is because the low cost of equity allows firms to finance the investment opportunities that emerge in a growing economy.

Despite the highly consequential role of monetary policy in shaping the economic and financial environments in which firms issue securities, there is no empirical work that directly examines the effects of monetary shocks on the U.S. IPO activity. While the literature recognizes the effect of interest rates on the companies' decision to go public (Jovanovic and Rousseau, 2004), the independent influence of monetary policy shocks on the IPO activity remains to be examined. This examination is relevant because exogenous monetary shocks – i.e., those that extend beyond the central bank's endogenous reaction to economic conditions – significantly influence economic output (Gertler and Karadi, 2015), equity markets (Bernanke and Kuttner, 2005; Thorbecke, 1997) and the general costs of financing (Jarociński and Karadi, 2020). A natural extension of these findings is to examine the extent to which monetary shocks affect one of the major decisions in the firm's life cycle. How does the IPO activity respond to monetary shocks?

Unanticipated monetary tightening increases the cost of debt, which significantly reduces the credit opportunities of private companies (Grosse-Rueschkamp et al., 2019). Whether such firms seek to issue equity as an alternative source of financing depends on the characteristics of the monetary shocks. In the conventional monetary sense, monetary tightening leads to a reduction in output, stock market valuation and investment opportunities (Bernanke and Gertler, 1995; Gertler and Karadi, 2015). Hence, it is reasonable to predict that such factors might deter companies from going public, especially given the increased risk aversion of equity investors and limited opportunities to invest the IPO's proceeds.

However, in addition to conducting monetary policy in the conventional sense, central banks are key producers of macroeconomic information (Cieslak and Schrimpf, 2019; Nakamura and Steinsson, 2018; Romer and Romer, 2000). There is robust evidence that markets are highly reactive to the signals conveyed by central bank decisions (Cieslak and Schrimpf, 2019). The informational advantage of the Fed is not due to access to official statistics before market participants but to committing more resources to forecasting (Romer and Romer, 2000). A rise in the funds rate can be a positive signal of an improving economic outlook, which leads to higher stock returns and subsequent improvement in investment opportunities (Cieslak and Schrimpf, 2019; Nakamura and Steinsson, 2018). Hence, a monetary shock that increases the cost of debt but conveys positive information about the economy can incentivise more private firms to go public. In doing so, these firms benefit from the improved stock market valuations and can use their IPO's proceeds in richer investment opportunities.

Accordingly, while contractionary monetary shocks in their conventional context trigger a decline in IPO activity, monetary contraction that conveys positive macroeconomic information is predicted to trigger a rise in IPOs. These predictions are tested by applying the high-frequency identification strategy of Jarociński and Karadi (2020) in a Structural Vector Autoregression (SVAR). This strategy exploits high-frequency correlations between bond and stock returns at the time of FOMC announcements to separate conventional monetary shocks from the shocks reflecting a change in the central bank's assessment of the future economic activity. The reported empirical evidence supports the key predictions. A conventional standard deviation shock in federal funds futures triggers a subsequent decline of up to 8% in overall IPO activity during the following months. An opposite effect emerges in response to a standard deviation shock in funds futures when such shocks convey positive economic information.

This paper makes two contributions to the literature. First, it shows that monetary policy has a significant and independent role in shaping the IPO market. This role extends beyond the Federal Reserve's endogenous reaction to the prevailing economic conditions. Second, this paper indicates that the informational impact of monetary shocks is as consequential as the conventional impact in affecting the IPO activity.

2. Methodology

The Jarociński and Karadi (2020) approach consists of separating traditional monetary shocks from central bank information shocks using the high-frequency co-movements of stock returns and interest rates in the short window surrounding announcements by the Federal Open Markets Committee (FOMC). Conventional monetary shocks are identified by a negative association between stock returns and interest rates at the time of FOMC announcements. This is because unexpected monetary contraction increases discount rates and reduces the future dividends of firms by reducing their growth opportunities. Both factors contribute to the decline in stock prices.

A positive co-movement between stock returns and interest rates, in turn, indicates that the FOMC decision conveys new information about the central bank's assessment of the underlying economic conditions. An unanticipated monetary contraction that is associated with an increase in stock returns reflects updated positive expectations regarding economic growth and investment opportunities (Jarociński and Karadi, 2020).

The Jarociński and Karadi (2020) dataset covers 240 FOMC announcements between 1990 and 2016. Changes in the three-month fed futures that are negatively correlated with the S&P 500 in the 30-minute window (10 minutes before, 20 minutes after) surrounding FOMC announcements are classified as *Conventional Shocks*. Changes in the three-month fed futures that are positively correlated with the high-frequency change in the S&P 500 are classified as *Informational Shocks*. The level of the *Conventional* or *Informational Shock* for each meeting is assigned to the corresponding calendar month. In absence of FOMC meetings, the value of 0 is assigned. In the 323 months covered in the sample between 1990 and 2016, 108 months (33.43%) include *Conventional Shocks* while 53 months (16.61%) include *Informational Shocks*.

(Insert Table 1 about here)

Table 1 presents the sign restrictions used in the SVAR model, as in Jarociński and Karadi (2020). As the high-frequency changes in the fed futures reflect unanticipated adjustments in interest rate expectations, it is reasonable to impose the restriction that these changes are not influenced by any of the remaining variables.

3. Data, Results and Discussion

The IPO dataset comes from the Jay Ritter website and its construction is discussed in Ibbotson et al. (1994). I add one to the monthly number of IPOs reported on the Jay Ritter website and take the natural logarithm of the sum as a proxy for IPO activity. The SVAR model includes a list of relevant macroeconomic and market-related variables whose sources and descriptive statistics are presented in Table 2.

(Insert Table 2 about here)

Figure 1 presents the impulse responses to conventional and information shocks in the model. The *conventional* and *informational shocks* have two opposing effects on the IPO market. A standard deviation conventional (informational) shock triggers a subsequent decline (rise) of up to 8% in IPO activity. Conventional shocks make private firms reluctant to proceed with their IPO plans and consequently reduce IPO activity. Contractionary shocks that are interpreted as a source of positive information, however, seem to create a favorable environment for firms to go public.

(Insert Figure 1 about here)

The main inference from these results is that limiting the analysis of monetary shocks to their conventional definitions overlooks the significant informational role of central banks in influencing going-public decisions. Disentangling the conventional and informational effects of central bank decisions allows for a clearer assessment of the monetary policy's influence on IPOs. The central bank's informational role seems to extend beyond the real economy to the realm of corporate financing, which calls for further research in this area.

Table 1: Identifying restrictions in the VAR model

| Variable	Shock		
	Conventional (negative correlation)	Informational (positive correlation)	Other
High Frequency			
Interest Rate	+	+	0
Stock Returns	-	+	0
Low Frequency Variables	UN	UN	UN

Note: This table is replicated from Jarociński and Karadi (2020). It represents their restrictions on the contemporaneous responses of variables to shocks. +, – refer to sign restrictions, while 0 and UN refer to zero restrictions and unrestricted responses, respectively.

Table 2: Descriptive statistics of the variables in the SVAR

Variable	Mean	SD	Source
1+ IPO Activity (100× log)	303.30	84.72	Jay Ritter Website
Conventional Shock (%)	-0.01	0.05	Jarocinski and Karadi (2020)
Informational Shock (%)	0.00	0.02	Jarocinski and Karadi (2020)
S&P 500 (100× log)	689.45	51.83	CRSP
Real GDP (100× log)	941.58	19.21	Bureau of Economic Analysis, interpolated at the monthly level by Jarocinski and Karadi (2020)
GDP Deflator (100× log)	447.54	15.56	Bureau of Economic Analysis, interpolated at the monthly level by Jarocinski and Karadi (2020)
1 yr gov bond (%)	3.15	2.39	Federal Reserve, FRED Database

Note: This table presents the mean, standard deviation, and source of each variable used in the model.

Figure 1: Impulse response
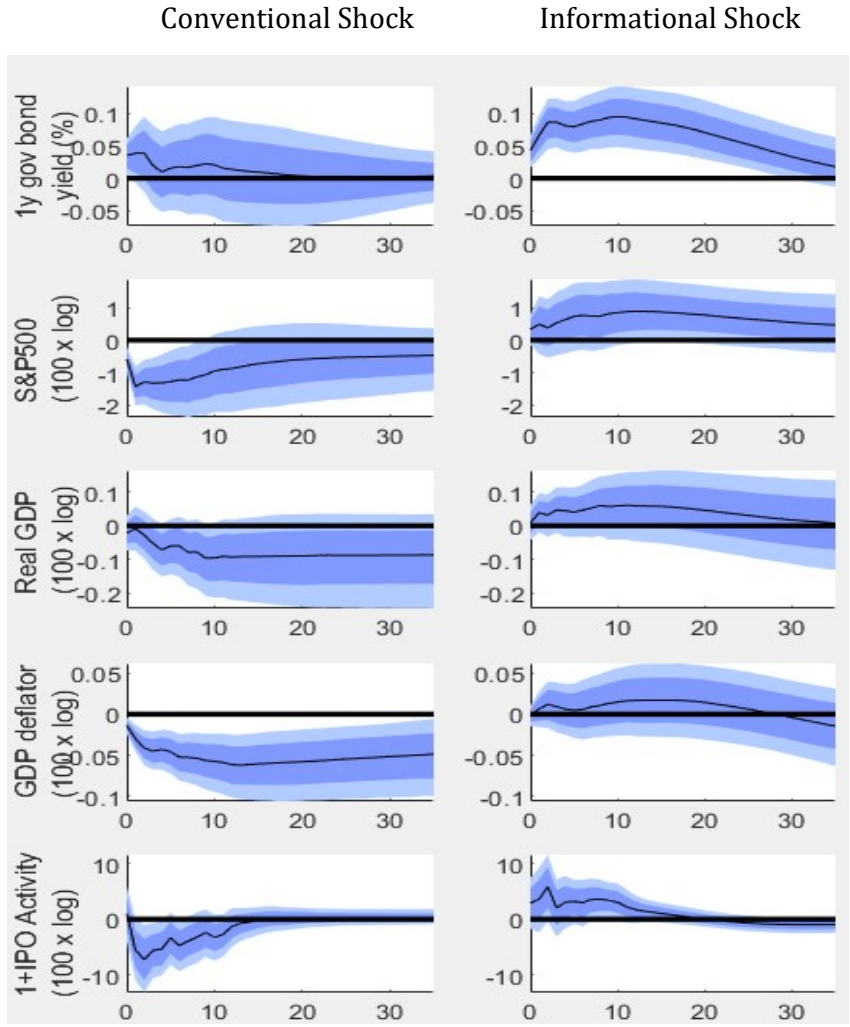
Note: Medians are presented in lines, the 16th and 84th percentiles in darker band, and the 5th and 95th percentiles in lighter band.

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