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# Federal reserve's policy, global equity markets, and the local monetary policy stance

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## ABSTRACT

This paper examines the extent to which local monetary policy stance determines the strength of US monetary policy international transmission to global equities. Using a sample of 35 countries, we document that US monetary policy surprises exert significant inverse effects on global equity returns. Our results suggest that countries whose policy rates are brought into line with that of the US are less sensitive to US monetary policy shocks only when they have a high and intermediate level of cross-border financial linkages, and only when they have a low and intermediate level of exchange rate volatility.

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## 1. Introduction

This paper provides an empirical examination of the international propagation mechanism of US monetary policy shocks to global equity markets. The international dimensions of the Federal Reserve's (Fed) actions have been a topic of continuous scrutiny in the literature, as they carry direct implications for global portfolio allocations, as well as for monetary policymaking. The bulk of research to date has attempted to discern the determinants of global equities' reaction to US monetary policy shocks by conditioning the strength of the transmission, mainly, to the degree of countries' cross-border real and financial integration, and to the flexibility of their exchange rate (e.g., Ammer et al., 2010; Ehrmann and Fratzscher, 2009; Wongswan, 2009). The present study adds to the existing evidence by examining the extent to which local monetary policy stance determines the strength of US monetary policy international transmission.

The present study builds on a long and extensive literature, which, typically, pursues a twofold objective. First, it attempts to

establish the existence of international spillover effects, and second, it seeks to identify the determinants of the strength of these effects. Evidence on the nature of the relationship between US monetary policy and international equity returns is rather robust, with the bulk of evidence pointing to a significant inverse relationship between US monetary policy shocks and foreign stock prices.<sup>1</sup> There is also evidence of a significant link between Federal Open Market Committee (FOMC) communications and international equities (Hayo et al., 2010, 2012). Documenting global equities' reaction to US monetary policy shocks and FOMC communications can reveal the extent to which US monetary policy can affect common and country-specific business cycle and asset price fluctuations (Lastrapes, 1998). The motivation for the second objective arises from ongoing efforts to uncover the proper course of actions that a country must pursue in order to internalise the externalities associated with US monetary policy (Canova, 2005). To the best of our knowledge, this study is the first to test formally the implications of bringing into line ("synchronising") local policy rates with that

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<sup>1</sup> See Ammer et al., 2010; Bailey, 1990; Conover et al., 1999; Craine and Martin, 2008; Hausman and Wongswan, 2011; Hayo et al., 2010, 2012; Hussain, 2011; Johnson and Jensen, 1993; Lastrapes, 1998; Mann et al., 2004; Wongswan, 2009.

of the US for the strength of the US monetary policy transmission to global equities.

The posited channels through which US monetary policy affects foreign firms' cash flows and discount rates can be complex, and the ultimate result on global equity prices is uncertain *a priori*. For instance, US monetary policy shocks can have significant inverse effects on global equity prices through their impact on the international interest rates, as the latter are used to discount foreign firms' future cash flows.<sup>2</sup> Simultaneously, however, international interest rate adjustments following innovations to Fed's actions might pass through to exchange rates via uncovered interest rate parity, and also affect foreign firms' cash flows by altering domestic goods' competitiveness. But the impact of these two channels on global equity prices can be offsetting, and their relative importance difficult to predict beforehand (Wongswan, 2009). In a similar vein, innovations to US monetary policy stance can also affect foreign equities because they may trigger global portfolio rebalancing due to changes in the relative returns of global assets (Lastrapes, 1998). Finally, to the extent that the developments in US asset markets and macroeconomic conditions are interrelated with those of global economies, US monetary policy can influence expectations about future returns in global assets through its impact on US economic activity (Lastrapes, 1998).

Intuitively, we expect that countries' sensitivity to externalities associated with US monetary policy is more pronounced when their goods and financial markets are integrated with the rest of world. Furthermore, the nature of a country's exchange rate regime is often couched in discussions about the strength of the international financial transmission of US monetary policy, as it determines the extent to which local interest rates adjust to US monetary policy innovations (Frankel et al., 2004; Shambaugh, 2004). Against this background, most of the existing research attempts to operationalise an empirical exploration on this subject by conditioning the differential reactions of global equities to US monetary policy shocks to the differences in cross-border real and financial linkages, as well as to the flexibility of the exchange rate regime.

In this context, a number of recent papers document that countries with a higher degree of real (Ehrmann and Fratzscher, 2009; Hausman and Wongswan, 2011) and financial (Bailey, 1990; Hausman and Wongswan, 2011; Wongswan, 2009) integration with the rest of the world are more sensitive to US monetary policy shocks. Other research focuses on the way foreign interest rates and exchange rates adjust to global interest rate shocks, and finds that equities of countries with flexible exchange rates respond in a less pronounced way to US monetary policy (Ammer et al., 2010; Bailey, 1990; Hausman and Wongswan, 2011). Other factors that can capture the strength of the international financial transmission of US monetary policy include the high degree of equity markets' openness, level of development, riskiness, and the degree of a country's business cycle correlation with the US (Ehrmann and Fratzscher, 2009; Wongswan, 2009).

The feedback responses of local monetary policy to Fed's actions, however, can influence the strength of US monetary policy shocks transmission, and although this possibility has been acknowledged (Ehrmann and Fratzscher, 2009), it has not been formally tested. The reported reaction of global equities, for instance, might not only be due to an unexpected change in US monetary policy, but also due to an adjustment of similar direction to the local monetary policy conditions. In this case, the ultimate impact of Fed's actions on international equities would be more pro-

nounced, as foreign stocks will also respond to the changes in local monetary policy conditions.

The synchronisation of policy rates, however, can also reduce the strength of the transmission. A similar policy to that of the US, for instance, can cancel out US monetary policy induced exchange rate adjustments and, given that higher exchange rate volatility amplifies the impact of US monetary policy shocks on global equities (Ehrmann and Fratzscher, 2009), narrow this transmission channel. This posited hypothesis is reinforced by existing evidence which asserts that foreign monetary policymakers use their interest rate policy to cancel out abrupt changes in exchange rates (Calvo and Reinhart, 2002; McCallum, 1994). Moreover, synchronisation of policy rates can also act as a form of signalling for increased monetary policy cooperation reducing equity risk premia and sensitivity to US monetary policy externalities.

The analysis in the present study proceeds in three steps. First, in subSection 2.1 we explore the relationship between US monetary policy shocks and global equities. Using an event-study framework, consistent with the bulk of existing recent literature (Ammer et al., 2010; Ehrmann and Fratzscher, 2009; Hausman and Wongswan, 2011; Wongswan, 2009), we capture the immediate effects of US monetary policy shocks on the daily stock returns of 35 countries.

Second, in subSection 2.2 we characterise the degree of monetary policy interdependence between the US and the countries in our sample, and we seek to identify the extent to which the strength of international equities' reaction to US monetary policy shocks hinges on the level of a country's monetary policy interdependence with that of the US. Although monetary policy coordination can materialise in different forms, in this study we consider the synchronisation of interest rate policies, similarly to Bergin and Jordà (2004) and Shambaugh (2004). We consider two different definitions for the commonality of monetary policy conditions between the US and a foreign country in this study. The first is a time-varying definition of commonality, based on the monthly indicators for countries' monetary policy conditions (see Conover et al., 1999; Mann et al., 2004). We identify those countries which for a certain period share similar monetary policy conditions with the US. The second approach follows the technique developed by Bergin and Jordà (2004), and allows to identify those countries whose policy rate changes are more likely to move in the same direction with the Fed's policy rate.

The third step, in subSection 2.3, consists in investigating how country-specific characteristics influence the strength of the international financial transmission of US monetary policy to the countries synchronising their policy rates with that of the US. In this context, we categorise countries according to the degree of their cross-border real and financial linkages as well to the flexibility of their exchange rates, and we analyse the differences. Finally, Section 3 offers some concluding remarks.

## 2. The response of global equities to US monetary policy shocks

### 2.1. Baseline event-study results

We seek to identify the effects of US monetary policy shocks on global equity markets using a pooled regression-based event study approach. The event-study approach has been used extensively in the stream of research which seeks to identify the effects that FOMC announcements elicit on international stock market returns (see *inter alia* Ammer et al., 2010; Ehrmann and Fratzscher, 2009). This approach provides the empirical framework for identifying the average effects of FOMC announcement surprises on foreign stock returns. Moreover, it provides flexibility for capturing the dif-

<sup>2</sup> The significance of this transmission mechanism is reinforced by evidence indicating that changes in foreign interest rates is a significant amplifier of US monetary policy shocks international transmission (Canova, 2005; Frankel et al., 2004; Kim, 2001).

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