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**“DIVERGENT MONETARY POLICIES AND THE WORLD ECONOMY”<sup>1</sup>**

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**SUMMARY**

*We live in an increasingly globalised world. The responsiveness of financial markets to monetary policy announcements is prima facie evidence that the exit from the zero lower bound may have potent spillovers on other countries in the short run. The medium-term impact of monetary policy spillovers is however much less clear-cut than frequently assumed in policy debates. Looking forward, central banks play an important role in preserving price and financial stability in their own constituencies, but also in stabilising the global financial system. However, it would be a misconception to believe that central bank actions alone are enough. Central banks have to respond to their own economies’ fundamentals but “putting their house in order” is not enough to ensure a suitable global economic environment. Global challenges require domestic and global responses to make the financial system more resilient.*

**Introduction**

Ladies and Gentlemen,

It is a pleasure for me to speak at this joint conference on “Diverging Monetary Policies, Global Capital Flows and Financial Stability” hosted by the Hong Kong Monetary Authority.

The current international environment poses a number of important challenges to policy makers, such as the decline in commodity prices, remaining global imbalances and a synchronized growth slowdown in emerging economies with

worldwide consequences. I could continue this list even further. From a central banking perspective, however, an obvious challenge in the coming months will be the divergence between the monetary policy stance in the US and other major advanced economies.

When divergences reflect differences in fundamentals, as it is the case between the US and the Euro Area, the traditional view was that no problems would be created to the global economy. However, this time the divergences could have greater global repercussions than in the past. This might be the case due to four momentous developments that the global economy has witnessed over recent years. First, several emerging economies – China in particular – have integrated in the global economy to an unprecedented degree. Second, the increasing international fragmentation of production has given rise to tight links between countries along the global value chain. Third, the liberalisation of capital flows and the rise of global banks have brought about strong cross-border financial linkages. Fourth, the zero lower bound has rendered central bank balance sheets and forward guidance crucial monetary policy instruments.

There is compelling “prima-facie” evidence that monetary policy in major advanced economies has significant spillovers to the global economy, at least in the short term. I refer here to the high sensitivity of global bond yields and exchange rates to recent monetary policy announcements in the US and the euro area. Likewise, the changes in market expectations about the timing of US monetary policy tightening have given rise to bouts of financial market volatility.<sup>2</sup> However, over the medium term, considering the multiplicity of channels of monetary policy transmission, the impact on other countries’ macroeconomic outlook is much less clear-cut. It also critically depends on the economic fundamentals of the receiving countries, as I will explain in more detail later.

The truth of the matter is that given the lack of historical precedents on what the impact of a major economy departing from a zero lower bound environment is, market analysts and policy makers do not have much of a choice other than “learning in real time”. While recent work in academia and policy institutions has improved our understanding of the transmission mechanisms that give rise to global spillovers, we still live with more open questions than answers.

In the remainder of my remarks, I would like to discuss the spillovers generated by monetary policy in the US and in the euro area in more detail. I shall also briefly touch upon the implications of a growth slowdown in emerging economies. I will then share my views on how policymakers can deal with these spillovers. Finally, I will briefly touch upon policies that may help increase the resilience of the international monetary system.

### **Monetary policy spillovers**

International spillovers from the monetary policy of one country to other economies are a corollary of globalisation. This entails that we, as policymakers, have to rise to the challenge of conducting monetary policy in the presence of these unintended side-effects.

The sign and magnitude of monetary policy spillovers is, a priori, less clear than assumed in some economic debates. Consider, for example, the impact of a US dollar appreciation resulting from a tightening in US monetary policy. On the one hand, to the extent that the appreciation of the US dollar improves other economies’ price competitiveness, expenditure switching effects will shift US demand in favour of imported goods; at the same time, US goods become more expensive abroad, leading to substitution by domestic goods there. Through this expenditure switching channel, the spillovers from US monetary policy are

expansionary for other countries. However, as the tightening in monetary policy leads to a dampening in US aggregate demand, contractionary spillovers will ensue through an overall import reduction in the US. As a result, the sign of the spillovers through trade is ambiguous. Recent research has emphasised that it depends on further complicating elements, such as the currency of trade invoicing.<sup>3</sup>

While a traditional textbook would focus on trade as the main channel of monetary policy spillovers, the literature suggests that financial channels – through exchange rates and capital flows – are more important, especially when departing from a stylised world with frictionless financial markets. In particular, in an international version of the financial accelerator with foreign-currency debt, a US dollar appreciation would increase the local-currency value of liabilities denominated in US dollar in the rest of the world. In turn, this would impair borrowers' net-worth, at least in the absence of a matching cash-flow in US dollars.<sup>4</sup> This is the root of the classic “original sin”<sup>5</sup> in international macroeconomics, which can affect both public and private borrowers. The literature highlights a number of financial market imperfections that give rise to excessive volatility and contagion in asset prices and capital flows, magnifying the spillovers from monetary policy.<sup>6</sup> It is this multitude of transmission channels, some of them going in opposite directions, which calls for a cautious judgement of the sign and magnitude of the spillovers from monetary policy. With this in mind, let me now discuss the empirical evidence of monetary policy spillovers between the US, the euro area and emerging economies.

### *Spillovers from US monetary policy*

Let me start with the international impact of US monetary policy. There is a broad consensus that the spillovers emanating from the US are relatively large.<sup>7</sup> This is rooted in the international role of the US dollars, both in global financial markets and in international trade. In particular, US monetary policy greatly affects risk premia, volatility of asset prices and global credit growth. It has even been argued that monetary policy in the US is the driver of a “global financial cycle”. According to this view, contractionary US monetary policy results in tighter financial conditions not only in the US but globally.<sup>8</sup>

The dominance of the US dollar in the invoicing of US trade makes spillovers from a US monetary policy tightening, contractionary. On the one hand, because more than 90% of US imports are invoiced in US dollar, US demand for foreign goods hardly rises in response to US monetary policy through expenditure switching effects. On the other hand, as the share of US exports invoiced in US dollars is 97%, an appreciation of the US dollar exchange rate may trigger expenditure switching in the rest of the world away from US towards domestic goods. Overall, the spillovers from a tightening US monetary policy to output growth through expenditure switching are thus expansionary. In contrast, due to the stickiness of US dollar import prices, US demand for foreign goods closely co-moves with US aggregate demand, which contracts in response to the tightening in monetary policy. The dominance of the latter effect renders the output spillovers from a tightening US monetary policy through trade, contractionary. Furthermore, a high share of US exports invoiced in US dollar implies large spillovers to inflation abroad.

These spillovers from US monetary policy differ across countries and regions. For example, changes in the euro-US dollar exchange rate have a substantial impact on euro area export competitiveness towards third countries whose

exchange rate is linked to the US dollar, given the prevalence of producer-currency pricing with a share of 70% among euro area exports.<sup>9</sup> US monetary policy therefore affects the euro area through the relative export competitiveness in the world markets and the competitiveness of US exports in the euro area. Import prices in the euro area are partly shielded from the effects of fluctuations in exchange rates in what concerns imports from countries other than the US, given that about 50% of aggregate euro area imports are invoiced in euro.

However, the central channel of spillovers from US monetary policy appears to be via capital markets.<sup>10</sup> In fact, US monetary policy has large financial spillovers, especially to European bond markets. German nominal bond yields, for example, follow the change of US bond yields in response to a US monetary policy tightening by more than one third.<sup>11</sup> Owing to the role of the US dollar in emerging economies' integration with global financial markets, spillovers through valuation effects, "original sin" and financial accelerator mechanisms, are much stronger than in the euro area. Overall, the evidence even suggests that spillovers from US monetary policy might be larger than the domestic effects in the US.<sup>12</sup>

The spillovers from unconventional US monetary policy, such as the Federal Reserves' asset purchases, are harder to quantify than those from conventional monetary policy. As there is not a single monitored policy variable, studies have to rely on indirect measures of unconventional monetary policy surprises. Typically, a quantity that monetary policy appears to target, such as corporate bond spreads or term premia, has been used to do so. One difficulty in interpreting the results of this strand of the literature stems from the possibility that interest rate spreads may reflect information that goes beyond what is captured by US monetary policy. As a second caveat, I would like to add that almost all unconventional monetary policy measures that were taken so far were

expansionary. As available studies are necessarily based on past data, they might not be informative regarding the effects policy actions have in the opposite direction.

### ***Spillovers from euro area monetary policy***

Turning to the euro area, the evidence suggests that spillovers from euro area monetary policy are smaller than those from the US, not least because of the dominance of the US dollar in global financial markets.<sup>13</sup>

US inflation is shielded from exchange rate fluctuations in response to a euro area monetary policy loosening due to its “privileged insularity”, as almost all of US imports are invoiced in dollar. By the same token, euro area exports to the US would not benefit much from a depreciation of the euro vis-à-vis the dollar. At the same time, considering that a very large share of US exports to the euro area are invoiced in US dollar, there is a larger potential for real spillovers from euro area monetary policy to the US through expenditure switching away from US goods in the euro area. In this context, however, I would like to stress that if our monetary policy succeeds in stimulating euro area aggregate demand, then this will also increase euro area demand for US goods, counteracting the loss in competitiveness for US firms from the dollar appreciation. And as argued above, the income expenditure channel – in this case an expenditure increase – appear to be quantitatively more important than the expenditure switching channel.

As regards the spillovers from the euro area to emerging economies, given that about 70% of extra-euro area exports to these countries are invoiced in euro, there is a potential for a large impact through expenditure switching abroad. And due to the sheer size of the trade flows, such expenditure switching could

have noticeable spillovers in neighbouring economies in Europe. In response to a euro area monetary policy loosening, this effect would be largely contractionary to the extent that their currencies appreciate vis-à-vis the euro. But again, any contractionary spillovers through expenditure-switching are likely to be undone by expansionary effects through the strengthening in euro area aggregate demand. And there is substantial empirical evidence that the latter dominate, in particular for neighbouring economies in Europe.<sup>14</sup>

More recently, some studies have suggested that spillovers from the euro area might have become larger, in particular those stemming from unconventional monetary policies and operating through financial channels.<sup>15</sup> Take the example of the ECB's announcement of the Expanded Asset Purchase Program which triggered a concurrent decline in US bond yields, despite speculation about an imminent increase in the US Fed Funds rate.<sup>16</sup> The large size of foreign assets and liabilities in the US and the euro area implies that the balance sheet effects of an exchange rate or interest rate change can trigger larger spillovers from the euro area to the US than we had been used to.

### *A brief digression on emerging markets*

Allow me a brief digression on emerging markets. The linkages between emerging and advanced economies are closely monitored at the present time. This is the case not only because of concerns over the impact of monetary policy decisions in advanced countries but also given that an economic slowdown in emerging economies may potentially compromise a still fragile global recovery. The lack of synchronisation between the business cycle and monetary policies in the US and the euro area may reduce the current impact of monetary policy decisions in advanced countries on emerging countries as the

effects tend to offset each other.<sup>17</sup> The growth outlook in emerging economies may matter more than in the past. This is particularly evident if we consider that they account for more than 50% of world output, 40% of world trade volumes and an increasing, albeit still small, share of global stock market capitalisation or international bond issuance.<sup>18</sup> China is increasingly becoming a global player, whose decisions have increasingly relevant repercussions at the global level. Its share on global GDP has risen substantially, it accounts for a larger share of global trade, and is gradually liberalising its capital account and thereby integrating into global financial markets. Nevertheless, developments in China still have less direct impact on the euro area than those in the US. First, in 2014, the share of extra-euro area exports to the US in total exports was almost twice as large as the corresponding share accounted for by China.<sup>19</sup> Second, China's demand for euro area exports is largely driven by global rather than by domestic demand. In particular, a large share of euro area exports to China is made up of intermediate goods, which are, in turn, used in the production of Chinese exports to the rest of the world. Third, due to the remaining restrictions on China's capital account, financial integration between the euro area and China remains limited. In 2013, the share of US foreign financial assets held by euro area residents was more than 40 times as large as the corresponding share of Chinese foreign financial assets held by euro area residents.<sup>20</sup> And finally, a slowdown in China's domestic demand lowers global commodity prices, which acts as a stimulus to commodity importers like the euro area.<sup>21</sup> Having said that, the ECB is carefully monitoring events in emerging economies, as their effect on the rest of the world might turn out to be larger if mutually-reinforcing neighbourhood effects materialise.<sup>22</sup>

## **Coping with monetary policy spillovers**

To cut a long story short, the global economy has become more vulnerable than ever before to very large real and financial spillovers. Global factors drive asset prices and cross-border flows. And in some cases, the ability of domestic monetary policy to achieve its mandate might be more limited than we used to think, in particular in emerging economies. What measures should be taken to manage the risks associated with the rise in global financial integration while not forsaking its benefits?

One influential view in policy circles, close to being the conventional wisdom until some time ago, is that “putting your own house in order” is the main and best line of defence against external influences. Another view, that is rapidly gaining ground, surmises instead that global problems also require global solutions.

The first view seems to find some support in the fact that while recent bouts of financial market volatility typically occurred in response to global shocks, not all economies were affected to the same extent. This is consistent with evidence suggesting that global push factors explain capital surges in general but domestic pull factors determine in which country they end up.<sup>23</sup> Unfortunately, the debate about precisely which fundamentals mitigate economies’ vulnerability to abrupt capital flows episodes is not settled. Some studies find that emerging economies with better institutions were less affected by unconventional monetary policy measures in advanced economies, for example. Other evidence suggests that countries that had allowed their current accounts to run into large deficits and their exchange rates to substantively appreciate displayed larger capital flow volatility during the taper talk in 2013. And one study that will be presented at the conference finds that emerging economies, that were less vulnerable across a range of fundamentals, displayed a less

pronounced deterioration of financial conditions during the taper tantrum.<sup>24</sup> At the same time, a number of papers fail to confirm these findings concerning the relevance of fundamentals for mitigating spillovers.<sup>25</sup>

Nevertheless, it is good news that many emerging economies have reduced their vulnerability along a number of dimensions, including having reduced current account deficits and adopted more flexible exchange rates. However, there remain worrisome pockets of vulnerability. The latter includes the level of corporate indebtedness and high stocks of foreign-currency debt in a number of emerging economies.<sup>26</sup> A deterioration in the global growth outlook combined with over-leveraged borrowers might pose significant challenges and non-trivial policy trade-offs for monetary policy.

The second view, pointing to the need for global solutions, rests its case on a growing strand in the literature that argues that financial conditions around the world are driven by a global financial cycle in risk appetite, the leverage of global banks and capital flows. A particular role in the transmission of this financial cycle across the world is assumed by global banks and international bond issuance more recently, as also highlighted by two papers that will be presented at the conference.<sup>27</sup> As already mentioned, US monetary policy is argued to have a substantial influence on the global financial cycle.<sup>28</sup> According to this increasingly popular view, a striking policy implication of the global financial cycle is that individual countries, especially emerging economies, face much starker trade-offs than those arising from the classic trilemma in international macroeconomics – the “impossible trinity” (a hypothesis that is also discussed by one of the papers that will be presented at the conference).<sup>29</sup> The predicament of many economies would in fact be better described by a dilemma between imposing capital controls on the one hand and forsaking domestic stabilisation on the other.

The debate about the dominance of the global financial cycle has re-ignited an old debate on the use of capital controls. In particular, a wave of theoretical work has emerged – one of these papers will be presented at the conference<sup>30</sup> – that rationalises the use of capital account restrictions as the welfare-optimising policy in a context in which large global shocks to capital flows lead to over-borrowing and financial vulnerability due to financial frictions.<sup>31</sup> This work has also contributed to the IMF’s revision of its view on capital flow management.<sup>32</sup> However, it is important to stress that the unilateral imposition of capital account restrictions can itself result in spillovers and externalities, in a suboptimal race to shift the burden of adjustment to global shocks from one country to others.<sup>33</sup>

### **Global responses**

One might argue that the importance of common factors in global financial markets and the imperfect ability to shield the domestic economy against their impact implies a case for international policy co-ordination.<sup>34</sup> However, there are good reasons why binding forms of such co-ordination are difficult to implement in practice in the case of monetary policy.

In particular, each central bank draws its legitimacy from a domestic political process. Each central bank operates within its own specific circumstances, which include its own institutional set-up, mandate and economic/financial market environment. Reaching a common understanding on what the issues are, the policy responses and the gains from engagement, in view of the great uncertainties on how the global economy operates, would be a major challenge. Central banks clearly need to continue their dialogue and remain ready for swift co-ordinated action in exceptional circumstances. Central banks play an important role in helping stabilise the global financial system. In the aftermath

of the global financial crisis, central banks were swift in extending swap lines to countries in need, on a discretionary basis. Our efforts contributing to the stabilisation have evolved into a standing swap facility among six major central banks. This contributes to stabilisation in a globalised world economy while respecting the mandates and independence of central banks.

It would be a mistake, however, to believe that central banks can solve all problems. Central bank actions aim at providing liquidity, ensuring the proper transmission of monetary policy and contributing to financial stability. They are not aimed at providing balance of payment support or at preserving the solvency of a state. This is a remit where I see much more scope for international co-ordination. But a global system of safety nets must also preserve the incentives to pursue responsible domestic policies and ensure prudent financial market behaviour to avoid a crisis in the first place. Safety nets should be designed so that they do not encourage moral hazard and excessive risk taking.

Clearly, we need to make the global financial system more resilient. At the global level, the biggest innovation over the past few years has perhaps been the introduction of specific precautionary arrangements, the Flexible Credit Line and the Precautionary Liquidity Line by the IMF.<sup>35</sup> There have been, however, other major improvements in the global financial safety net. In Europe, we now have a fully operational European Stability Mechanism to help countries in need. There is now also a Single Resolution Fund to support the resolution of banks that will be progressively fully financed by the banking industry. These are important steps ahead and Europe is not alone in improving its safety net. The Chiang Mai Initiative Multilateralisation (CMIM) in East Asia has doubled in size to USD 240bn. And in July this year, the BRICs launched a Contingent Reserve Arrangement among themselves to the tune of USD 100bn. Furthermore, there has been progress in the inclusion of enhanced Collective

Auction Clauses into newly issued international sovereign bonds to reduce the disruptiveness of sovereign debt restructuring.

Nevertheless, with huge amounts of debt in US dollars being created around the world without liquidity backstops, we are still far from having a global lender of last resort adequate for our times. Without properly addressing this issue at the global level, we run the risk of a durable fragmentation of the international system.

## **Conclusion**

Let me conclude. Global challenges require both domestic and global responses to ensure that the global financial system becomes more resilient. Important steps in the right direction have recently been taken on both fronts, albeit admittedly, many of these innovations have not yet been fully tested. We should not be complacent. In many ways, the present challenges to the global economy place the monetary and financial system at a sort of crossroads. We should not underestimate the challenges of living in the ever more closely interconnected global economy.

I thank you for your attention.

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<sup>1</sup> I wish to thank M. Ca’ Zorzi, G. Georgiadis, G. Strasser and L. Dedola, from the ECB staff for contributions in the preparation of this speech.

<sup>2</sup> Several event studies in the literature evaluate the domestic and global impact of monetary policy changes and announcement by controlling for changes in economic fundamentals and news (Neely, 2010; Fratzscher, Lo Duca and Straub, 2013, 2014; Moore et al. 2013 and Georgiadis and Gr ab, 2015). However, my take on this is that they are better suited to gauge the short-term rather than the long-term global impacts of monetary policy, in particular because they have a hard time in estimating the persistence of announcement effects.

<sup>3</sup> See Gopinath (2015) and ECBb (2015).

<sup>4</sup> This balance sheet effect has been pioneered as part of the “credit channel” of monetary policy transmission by Bernanke and Gertler (1995). See Gertler, Gilchrist and Natalucci (2007) for an open-economy extension emphasizing private-sector foreign-currency debt.

<sup>5</sup> Eichengreen, Hausmann, and Panizza (2005).

<sup>6</sup> See e.g. Forbes (2012). Other channels include the “risk taking channel”, which rests on the effect of monetary policy on the risk appetite of market participants, as described by Bruno and Shin (2015a), and Rajan (2005).

<sup>7</sup> See Kim (2001), Canova (2005), Mackowiak (2007), Fratzscher, Lo Duca and Straub (2013), IMF (2012), Rogers, Scotti and Wright (2014) as well as Georgiadis (2015).

<sup>8</sup> See Cetorelli and Goldberg (2012), Bekaert, Hoerova and Lo Duca (2013), Miranda-Agrippino and Rey (2014), Rey (2013), as well as Bruno and Shin (2015b).

<sup>9</sup> The competitiveness of euro area exporters vis- a-vis US domestic producers changes less, because these exports are mostly denominated in US dollar and are thus subject to incomplete exchange rate pass-through.

<sup>10</sup> For example, Kim (2001) estimates that between one-fourth and one-half of the stimulus of an expansionary US monetary policy for US output growth spills over to the output of Germany, France, Italy, Japan and UK. This spillover operates mainly through the capital market, whereas the trade channel plays only a minor role. See also Canova (2005); Nobili and Neri (2006); IMF 2013b; Georgiadis (2015).

<sup>11</sup> Ehrmann and Fratzscher (2005) estimate that after 1999, about 1/3 of US Treasury bill rate changes feed through to euro area interbank rates. They find that US monetary policy has no significant impact on euro area beyond these indirect spillovers from US interest rates. Neely (2015) finds spillovers of a similar magnitude.

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<sup>12</sup> See Canova (2005), Mackowiak (2007), Banerjee et al. (2015), Chen, Filardo, He and Zhu (2015), as well as Georgiadis (2015).

<sup>13</sup> See Rogers, Scotti, and Wright (2014), Ehrmann and Fratzscher (2003, 2005), Ehrmann, Fratzscher and Rigobon (2007), Fratzscher, Lo Duca and Straub (2014)

<sup>14</sup> See for example Janssen and Klein (2011), Errit and Uusküla (2013), Falagiarda, McQuade and Tirpak (2015) as well as Kucharcukova, Claeys and Vasicek (2014).

<sup>15</sup> See Buitron and Vesperoni (2015) as well as IMF (2012, 2013, 2015).

<sup>16</sup> See Bank of International Settlements (2015).

<sup>17</sup> See He et al. (2015), Kim and Shin (2015) and Buitron and Vesperoni (2015).

<sup>18</sup> See Haldane (2015).

<sup>19</sup> 12% versus 6.9% according to IMF Direction of Trade Statistics data. Notice that in order to account for competition faced by euro area companies in foreign markets from exporters based in third countries the weight of the renminbi in the euro effective exchange rate departs from the direct bilateral export linkages. In the case of China, the “double” export weight amounts to 16% compared to a direct export weight of 7%, over the period 2010-12 (see ECB Economic Bulletin 6, 2015).

<sup>20</sup> 13% versus 0.3% according to IMF Coordinated Portfolio Investment Survey data.

<sup>21</sup> See IMF (2015).

<sup>22</sup> See IMF (2014).

<sup>23</sup> See Ghosh et al. (2014).

<sup>24</sup> Fratzscher, Lo Duca and Straub (2013), Eichengreen and Gupta (2014), Ahmed et al. (2015) as well as Chen et al. (2015).

<sup>25</sup> See Forbes and Warnock (2012), Forbes (2014), Cerutti et al. (2015), Aizenmann et al. (2014) and Eichengreen and Gupta (2014). Fratzscher, Lo Duca and Straub (2013) find no evidence consistent with the hypothesis that a flexible exchange rate regime or capital account restrictions helped economies to insulate from unconventional monetary policies abroad.

<sup>26</sup> See Pitterle et al. (2015).

<sup>27</sup> See He et al. (2015) as well as Kim and Shin (2014).

<sup>28</sup> See Cetorelli and Goldberg (2012), Bekaert, Hoerova and Lo Duca (2013), Miranda-Agrippino and Rey, (2014) and Bruno and Shin (2015b).

<sup>29</sup> See Georgiadis and Mehl (2015), Rey (2013) and Rey (2015).

<sup>30</sup> Davis and Presno (2015).

<sup>31</sup> See Jeanne and Korinek (2013), Mendoza and Bianchi (2011) and Brunnermeier and Sannikov (2015).

<sup>32</sup> See IMF (2012) as well as Ostry and Ghosh (2013).

<sup>33</sup> See Forbes et al. (2012).

<sup>34</sup> See Rajan (2013) and Ostry and Ghosh (2013).

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<sup>35</sup> See Haldane (2014) and Fischer (1999).