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## Financial Market Crisis and Financial Market Channel

Before a new financial architecture can be established in the wake of the financial crisis, the increasing importance of the global financial market channel must be fully understood. This importance was illustrated by the unexpectedly strong dampening effects of the financial crisis on the real economy and by the worldwide contagion of the crisis, including its spreading to emerging market economies that were macroeconomically stable. This article argues that the financial sphere is gaining in importance over the real sphere and that the impact of global financial determinants on economic activity is growing ever stronger. The keys to dealing with this change are greater transparency, stronger incentive structures and a stronger regulatory and supervisory framework.

The current financial crisis has raised a number of diverse issues. In response, the G20 has set out a wide range of recommendations in its Washington Action Plan and in subsequent statements. The aim has been to rapidly restore confidence in the financial markets and, more importantly, to avoid financial crises of this scale in the future by establishing a new financial order.

The latter aspect, establishing a new financial architecture, requires a clear diagnosis of the changes that have taken place during the dynamic financial globalisation process as a sustainable foundation. While the aim of numerous approaches and initiatives focusing on financial stability is to strengthen individual banks and other market players (microprudential approach), such a diagnosis must centre primarily on macroeconomic aspects (macroprudential approach). The main emphasis should be on those factors that explain not only the unexpectedly rapid spread of the financial crisis, but also why dampening effects on the real economy, which can be observed worldwide, are so strong.

The increasing importance of the global financial market channel is mainly reflected in the dynamic of contagions, the rapid transmission of tensions across coun-

tries and asset classes. Previous explanations, which have focused mainly on the stability of the macroeconomic framework and trade channels in their assessments of financial stability and real effects, cannot sufficiently account for the scale and spread of the crisis. The global financial market channel might provide an important explanation as to why even some emerging market economies (EMEs) were sucked into the maelstrom of the financial crisis despite having achieved significant progress in establishing macroeconomic stability and improving the efficiency of their financial markets. Empirical studies show that global factors are increasingly important for domestic financial markets in the EMEs. The financial market channel is not only much more complex globally, but has, above all, become much broader. Existing approaches to assessing financial stability (and in particular systemic risks) should consequently be supplemented by financial market indicators and assumptions regarding the behaviour of relevant market players.

With financial globalisation, the structures of financial systems and the response patterns to external shocks have changed. These changes go a long way to explaining the developments outlined above and the efforts made to prevent systemic risks from emerging and distortions from quickly spreading to the financial markets and real economies in other countries. We have to enhance the transparency of changes to the financial market channel, the interdependence of the financial and the real sphere, and the emergence of financial imbalances. In this paper, we will focus on this problem of transparency, the nature of which is more macroeconomic.

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Against this backdrop, we will primarily look at the following key questions:

- In what way and to what extent has the global financial market channel changed with financial globalisation?
- How has the relationship between the impact of global factors and national factors on the development of EMEs' local financial markets changed?
- To what extent do these developments contribute to putting the brakes on domestic growth and the associated repercussions on the global economy?

To answer these questions, the big picture has to be analysed. However, this requires a perfect macroeconomic model and a large database – conditions which are difficult to meet. Nevertheless, newer empirical studies contain abundant findings that shed light on individual aspects of this big picture and provide individual pieces of the puzzle. Moreover, in times of great uncertainty, it is advisable to focus on the answers to the following questions:

- What reliable and relevant empirical results are available in the field being studied? The relevant empirical results establish a benchmark for assessing the current crisis.
- What sound arguments can be made in the current situation to suggest a long-term deviation from previous empirical evidence?

This article therefore focuses on providing an overview of the available empirical evidence in this field. It has become clear that the frequently complex results of financial stability analyses have to be formulated in a simpler and more transparent way for clear communication with the public and to support the use of these results in the political process. These considerations may also provide a certain degree of guidance for future debate and in-depth analysis on the reorganisation of the financial architecture.<sup>1</sup> This is also true of the necessary improvements in monitoring, surveillance and establishing early warning systems, the core issues on which the International Monetary Fund (IMF) and the Financial Stability Board (FSB) will focus in future.

1 “... in order to achieve improvements in the financial architecture that substantially strengthen financial stability, an in-depth analysis of the underlying reasons for the crises is essential.” Axel Weber: Risk transfer – challenges for financial institutions and markets”, Dinner speech at the joint Bundesbank-CEPR-CFS conference: “Risk transfer: challenges for financial institutions and markets”, Frankfurt am Main, 11 December 2008, in: BIS Review 158/2008, pp. 1 ff.

The financial crisis has revealed a number of information and data gaps which must be closed in a rapid and targeted manner. Necessary data are frequently only collected on a one-off basis. As a response to these information and data gaps, the FSB and the IMF discussed these issues with international experts and, based on these results, delivered an in-depth report to the G20 Finance Ministers and Central Bank Governors for their meeting in early November 2009.<sup>2</sup> However, this is an on-going process, and reviewing new empirical evidence can enhance transparency on the most urgently needed areas for further in-depth analysis and related data needs.

### Underlying Trends and Developments

Changes in the global financial transmission channel and the structure of the financial system are driven by underlying trends. The implications of these developments for the market dynamic, the dynamic of contagions and the changing interdependencies between the financial and real spheres of the economies have to be more closely and effectively monitored on a global level with a forward-looking view.

These trends<sup>3</sup> will be discussed only briefly here to elaborate key aspects before studying the implications in greater detail.

Financial globalisation has gained a lot of momentum in recent years and is generally associated with an increase in global capital flows. However, financial globalisation comprises much more, and the qualitative and structural changes associated with it are of even greater interest.

The institutionalisation of savings is one of the main drivers of financial globalisation. Given the rapid increase in inflows to such large, cross-border institutional investors, the search for yield and – even more so – for ways of diversifying risk has forced portfolio managers, working in a highly competitive environment, to channel more funds into hitherto relatively peripheral markets, which are less correlated with one another. Alongside the banks, institutional investors are the deci-

2 FSB and IMF: Financial Crisis and Data Gaps, Report to G20 Finance Ministers and Central Bank Governors, October 2009, <http://www.imf.org/external/np/g20/pdf/102909.pdf>; B. Braasch: Financial Crisis and Information Gaps, in: *Intereconomics*, Vol. 44 (2009), No. 4, pp. 208-214.

3 See also H. Remsperger, B. Braasch: Priorities in broadening the database in emerging market economies and developing countries and organisation of the future work programme, in: Deutsche Bundesbank (ed.): *Auszüge aus Presseartikeln*, No. 8, 20 February 2008, pp. 9-12.

sive driving force in financial globalisation. Not only do they make much more intensive use of the financial markets, they also make greater use of new and more complex financial instruments. The share of turnover generated by such investors as a percentage of total turnover has risen, in some cases considerably. “Rebalancing effects” are therefore taking on a completely different dimension. Better knowledge of such investors’ portfolio strategies provides insights into changes to market dynamics, contagions, and spillovers and into changes in the financial sector and the real economy.

Gaining a better understanding of institutional investors’ market behaviour will be one of the key analytical tasks in the next few years. More in-depth analyses could also create an important basis for reducing existing transparency gaps in monitoring global financial stability. Put more simply: if the behaviour of key global market players is not understood, it will be impossible to understand the process of financial globalisation or to achieve significant progress in analysing the causes and implications of financial crises.

This is not about gaining an insight into individual investors’ strategies, but about obtaining better data at the aggregate level, in other words for the main investor groups, in order to assess market dynamics, to achieve better and more timely monitoring.

The marketisation of finance and financial innovations is closely linked to the above trends. Lending and savings activities are increasingly being conducted via the financial markets with the use of increasingly complex instruments. This process is further accentuated by the securitisation of lending relationships and the redistribution of risk this entails.

In recent years, financial risk has increasingly been transferred to households and enterprises. However, both are worse at evaluating risks than financial sector enterprises; moreover, much fewer data are available, particularly in this area.

These developments have numerous implications; in particular, they have lent the transformation of the transmission channels considerable momentum in recent years. They have helped increase the complexity of cross-border financial ties and heightened the opaqueness of both national and international risk allocation.

Over the next few years, in particular, it will therefore be important to identify the analytical issues raised by these changes, their political implications and the data gaps, the closure of which has to be prioritised from a financial

stability perspective. It is important that a distinction be made here between the old and new causes of the crisis.<sup>4</sup>

### Financial Market Channel

The financial crisis has highlighted the growing importance of the financial market channel in the spread of tensions across national borders and asset classes and this channel’s effects on national and international economic activity. We cannot go into all facets of the financial market channel here, but will look instead only at particularly relevant empirical evidence. Our focus is on clarifying the following:

- To what extent do global financial determinants influence developments in national financial markets, especially the new market dynamics?
- To what extent is the influence of national financial indicators on the economy increasing?
- How strongly do financial market effects impact the national and international real economy and might they help explain why the effects of the financial crisis were significantly underestimated? In what way have mutual dependencies between the financial sphere and the real sphere changed?
- Finally, what implications does this have for global monitoring, surveillance and the reprioritisation of “early warning indicators”?

### Quantum Leap in Global Capital Flows

A good place to start assessing the financial market channel is to note that financial and real-estate wealth grew many times that of GDP in many industrial countries over the last two decades. The combined value of stock market capitalisation, outstanding debt securities and bank loans is around 4½ times greater than GDP in the United States, 5 times GDP in the euro area and 2½ times GDP in the EMEs. Changes in financial wealth, which is increasingly concentrated in the hands of a relatively small number of cross-border institutional investors nowadays,

4 “These characteristics relate to the basic nature of financial relationships, to risk perceptions and incentives and to powerful feedback mechanisms that operate both within the financial system and between that system and the macroeconomy. They jointly imply that the primary cause of financial instability has always been, and will continue to be, overexpansion in risk-taking and balance sheets, i.e. the occasional build-up of financial imbalances that at some point unwind, inflicting damages on the economy.” C. E. Borio: Change and constancy in the financial system: implications for financial distress and policy, BIS Working Papers, No. 237, October 2007, p. 2.

consequently have a much greater impact on real economic developments than in previous years.

These changes are reflected not only in a significant increase in international capital flows to the EMEs before the financial crisis, but also in a significant change in the structure of capital movements. These developments are especially reflected in the capital flows to emerging market economies through 2007, the year of the outbreak of the financial crisis.

- The volume of capital inflows and outflows has risen sharply, especially from 2005 to 2007. At US\$ 1,921 billion, capital inflows were about two and a half times higher than they were in 2005.
- This period has seen virtually unprecedented structural changes in international capital movements. These are reflected in a significant rise in portfolio investment, which grew by around 120% in the reference period. The EMEs, along with a number of developing countries, are increasingly coming into the focus of internationally operating institutional investors. In the search for yield and – even more so – diversification of their investments, these investors channel more and more funds into hitherto relatively peripheral markets which are less correlated with the price and yield movements in the capital markets of the major industrial countries. Internationally operating investors contribute considerably to the broadening and deepening of financial markets in the emerging market economies but, conversely, they also make the EMEs more vulnerable to sudden changes in investor sentiment and expectations.
- Other investments have shown an even clearer increase, attaining a value of US\$ 955 billion in 2007 – an increase of more than 400% since 2005. This position is, at the same time, larger than FDI and portfolio inflows into this country group combined. Its quantum leap is due principally to loans by internationally active banks to economic agents in the emerging market economies. The same applies when looking at the structural changes of capital outflows. As mentioned below, further analyses will be needed in order to make a more accurate assessment of this development and its implications.

All these arguments make abundantly clear the significance the financial market channel has attained, the quantitative effects that can be expected with a much more complex and opaque global transmission mechanism, how quickly the structure of these transmission channels changes and that this goes a long way to ex-

plaining the strength and synchronicity of the global effects of the crisis.

More importantly, empirical studies demonstrate that this is leading to a larger role for global factors in determining the volatility of capital flows to EMEs.<sup>5</sup> This does limit the EMEs' stability policy options. However, an important, useful and promising option is to develop and deepen domestic financial markets and promote their diversification. EMEs with developed local currency bond markets clearly have less volatile capital flows. In addition, local currency bond markets help the EMEs to use active debt strategies not only to reduce overall debt, but also to lower the percentage of debt denominated in foreign currency in order to reduce their vulnerability to external shocks.<sup>6</sup>

### Impact of Global Factors on National Financial Markets

Given these developments, it comes as little surprise that the impact of global factors on developments in national financial markets is increasing. However, the extent of these effects was unexpected, as will be demonstrated in the following text using empirical evidence particularly for the EMEs.

With the financial globalisation process, global factors are having a much greater impact on the development of national financial market indicators. In the past few years, approximately 50% of the spread variance in the major EMEs was caused by global factors such as global liquidity and the risk appetite of large international investors.<sup>7</sup> In a recent empirical study, Ciarlone et al. come to the conclusion "that a single common factor is able to explain a large part of the co-variation in EMEs' spreads observed

5 See, for example, C. Broto et al.: Measuring and explaining the volatility of capital flows towards emerging countries, in: Banco de España: Documentos de Trabajo, No. 0817, 2008.

6 P. Acevedo et al.: Local Debt Expansion ... Vulnerability Reduction? An assessment for six crises-prone countries, in: Banco De España: Documentos de Trabajo, No. 0733, 2007.

7 M. G. Rozada, E. L. Yeyati: Global Factors and Emerging Market Spreads, in: Inter-American Development Bank, Research Department, Working Paper No. 552, p. 12; D. Grassio, C., G. Hoggarth, J. Yang: Capital flows to emerging markets: recent trends and potential financial stability implications, in: Bank of England: Financial Stability Review, December 2005, pp 94-102; "This description is consistent with our in-house-model, which suggests that less than 20% of the fall in EMBIG spreads since the peak of the US interest rate cycle in January 2001 can be attributed to an improvement in EME fundamentals (proxied by sovereign credit rating upgrades). The remainder reflects an increase in global liquidity and in risk tolerance. Spreads are also lower currently, by 75 basis points, than suggested by this model and relative to their recent historical relationship with spreads on high yield US debt. This may indicate that investors are not paying sufficient attention to country differences and could make bond spreads sensitive to a decline in risk tolerance and deterioration in market liquidity conditions in the future." p. 100.

in the last 4 years; this common factor can be traced back mainly to financial market volatility.”<sup>8</sup>

It is apparent from these examples that market participants have made little distinction between the various EMEs in recent years with respect to fundamental developments.<sup>9</sup> The fall of the Emerging Markets Bond Index Global spreads can only be explained to a small extent by traditional models. This is corroborated by the fact that the differentiation as reflected in bond spreads was much lower than for sovereign credit ratings.<sup>10</sup>

Consequently, global factors’ domination of developments in the EMEs’ financial markets did not end with the onset of the financial crisis; in fact, their role has increased during the financial crisis.

As a result, EMEs remain vulnerable to sudden shifts in global financial conditions, especially with regard to the degree of risk aversion, although suitable macroeconomic policies and improved fundamentals have contributed to the reduction of yield differentials.<sup>11</sup>

Another indication that global factors are more relevant for national economic growth is that they are the main determinants of rating changes for the EMEs. Just “three factors can explain almost 90% of the movement.”<sup>12</sup> This raises the issue of whether rating agencies take adequate account of country-specific factors and thus promote a process by which international investors differentiate more strongly between asset classes and beyond borders.

The trends we outlined briefly at the outset have helped create a situation where changed market structures, port-

folio strategies and the high market liquidity mean developments in the financial markets are less determined by national real or fundamental factors than previously. Instead, they are increasingly driven by global portfolio rebalancing, which is based less on fundamentals than it used to be. This might be one of the main reasons why even countries with stable macroeconomic conditions have also been sucked into the financial crisis. This holds true despite the fact that sizeable current account and fiscal deficits are one of the main risk factors of financial stress.<sup>13</sup>

What are the implications if global financial factors increasingly supersede country-specific real factors or differentiation? Further research will certainly have to be conducted on this issue, but there is much to suggest that these global factors have triggered similar effects on the economies of the EMEs, leaving less room for a sustained decoupling.

### Strong Credit Growth – Harbinger of a Financial Crisis

With regard to the current crisis, two aspects must be separated: the direct transmission of subprime market tensions to investors and the indirect transmission channel, which explains the unexpected and rapid spread of these tensions across markets and countries. The following arguments are focused on the more important indirect channel and the question of what part the direct and very large exposures of foreign banks and institutional investors played in transmitting the tensions.<sup>14</sup>

According to estimates by Kamin and Ponder, it is not clear that direct exposure to bad US assets was, by itself, enough to turn the US subprime crisis into a global financial crisis.<sup>15</sup> Foreign investment in Asset Backed Securities (ABS), in domestic and foreign issues combined, amounted to around US\$ 2½ trillion, which was as much as 60% of the total value of US-issued ABS, or 17% of all foreign claims on the USA. Measured by writedowns on this paper, which the authors estimate at US\$ 770 billion, this represents not even 2% of the foreign bond market and stock market capitalisation and only one-quarter of the bank capital in non-US advanced economies. Even the greater dollar funding needs and their geographical distribution would not provide any major insight into the rapid, almost global spread of the sub-

8 A. Carlione, P. Piselli, G. Trebeshi: Emerging markets’ spreads and global financial conditions, in: *Journal of International Financial Markets, Institutions&Money*, No. 19, 2009, pp. 222-239.

9 Committee on the Global Financial System: Capital flows and emerging market economies, Report submitted by a Working Group established by the CGFS, CGFS Papers No. 33, January 2009. “As a consequence, the role of financial markets and their linkages in the transmission of economic shocks, both domestically and internationally, has increased substantially in the last decade and even exchange rate movements across currencies with deep financial markets may now be driven more than in the past by global private and official portfolios reshuffling rather than current account positions.” (p. 129) “For many in the official sector, these crises underlined the real need to make foreign investors more discriminating between countries, and so to reduce unwarranted contagion.” (p. 11).

10 G. Felices et al.: Capital Inflows into EMEs Since the Millenium: Risks and the Potential Impact of a Reversal, in: *Bank of England, Quarterly Bulletin*, 2008/Q1, pp. 26-36, here p. 30.

11 A. Carlione, P. Piselli, G. Trebeshi: Emerging markets’ spreads and global financial conditions, in: *Journal of International Financial Markets, Institutions & Money*, No. 19, 2009, pp. 222-239.

12 A. Powell, J. F. Martinez: On Emerging Economy Sovereign Spreads and Ratings, IADB Research Department Working Paper, No. 629, January 2008, p. 16.

13 International Monetary Fund: *World Economic Outlook*, April 2009, Chapter 4, How linkages fuel the fire: the transmission of financial stress from advanced to emerging economies, pp. 139-175.

14 S. B. Kamin, L. Ponder: How did a Domestic Housing Slump Turn into a Global Financial Crisis?, Submission to the Federal Reserve Bank of Dallas – Bank of Canada Conference on “Capital Flows, International Financial Markets, and Financial Crises.” February 27, 2009.

15 Ibid, p. 9.

prime crisis. The momentum of cross-border activities in the financial markets is further accelerated by the very strong growth in lending by banks operating globally. Do these developments in global credit transactions make even “healthy” EMEs more vulnerable? What lessons can be learnt from these developments?

Prior to the outbreak of the financial crisis, credit growth had already gained considerable momentum, reaching the same average growth rates seen prior to the financial crises during the second half of the 1990s. Experience has shown that strong credit expansion frequently sows the seeds for subsequent financial crises. In previous decades, there were practically no major national or international financial crises that were not preceded by excessive lending. In some EMEs, especially those which remain heavily dependent on external borrowing, it will therefore be important to analyse these relationships more closely.<sup>16</sup>

High levels of lending in the EMEs lead to a comparatively high degree of volatility in the real economy. The risk of a credit boom has been particularly high in EMEs with a system of fixed exchange rates or managed floating, in which the boom had been preceded by large capital inflows. More than 50% of the credit booms experienced in EMEs have been preceded by large capital inflows, and they go hand in hand with the risk of boom and bust cycles in the equity and real estate markets. They are also frequently accompanied by currency crises (68%), banking crises (55%) and “sudden stops” (32%).<sup>17</sup> Another reason for the necessity of in-depth analysis in this field is that over the course of this process, dependence on short-term borrowing in foreign currency has increased, especially in the case of some European EMEs.

### Foreign Bank Activities in Emerging Market Economies

Partnerships with foreign banks improve not only the international allocation of credit and capital but also banking supervision and compliance with international standards. However, this development harbours risks for the EMEs concerned as, in some of these countries, foreign bank loans account for a significant percentage of total outstanding loans. In emerging south-eastern Europe, 70% of all banking assets are held by 11 foreign banking groups.<sup>18</sup> The

regional concentration of financing increases the risk of contagion effects.

Large banks that operate globally, for example, rely on internal capital markets with their foreign affiliates to help smooth domestic liquidity shocks.<sup>19</sup> This holds especially true for liquidity and capital crises, where internationally operating banks are forced to restrict or withdraw loans – and this is important – regardless of the fundamental performance of an individual economy. The process of international de-leveraging together with the sharp asset price collapse have placed these EMEs at risk of an “imported credit crunch”.

The exposure of internationally operating banks may be an important factor in the transmission of financial market crises, particularly if a parent bank is a “common lender” for several EMEs. Although the activities of internationally operating banks in some EMEs, particularly the Central, Eastern and South-Eastern European (CESE) economies make up a large percentage of the activities of domestic banks, a “common lender” cannot be identified there, either.<sup>20</sup> However, that only means that a financial crisis in one of the affected EMEs is not spread to any significant extent to the other countries via the parent company, as in the current financial crisis. However, this is not to say that large exposure on the part of foreign banks does not help transmit tensions that emerge in the industrialised countries.

The expansion of lending by internationally operating banks may also be associated with a transfer of currency risks which encourages the emergence of currency mismatches in the EMEs. Owing to existing regulations restricting the open currency positions EU parent banks are allowed to enter, the parent banks are obliged to pass on funds they have accepted in foreign currency to borrowers in the EMEs.<sup>21</sup> Increased dependency of EMEs on the credit of foreign banks coupled with a deterioration of

16 B. Braasch: Financial stability in the emerging market economies: challenges and medium-term perspectives, Dinner Speech at the Joint BBK-IMF-World Bank G8 Conference on Global Support to Develop Domestic Bond Markets in Emerging Market Economies, September 2008.

17 See specifically, here and in the following: E. G. Mendoza, M. E. Terrones: An anatomy of credit booms: evidence from macro aggregates and micro data, NBER Working Paper 14049, May 2008.

18 P. Sorsa et al.: Vulnerabilities in Emerging Southeastern Europe – How much cause for concern?, IMF Working Paper, WP 07/236.

19 N. Cetorelli, L. S. Goldberg: Banking Globalization, Monetary Transmission, and the Lending Channel, paper presented at the Bundesbank’s Spring Conference, 19 May 2008.

20 Á. Zsófia, K. Driessen, I. Ötker-Robe: Regional Financial Interlinkages and Financial Contagions Within Europe. IMF Working Paper 09/6.

21 C. B. Rosenberg, M. Tirpák: Determinants of Foreign Currency Borrowing in the New Member States of the EU, IMF Working Paper WP/08/173, p. 9; “The availability of foreign funds that are fuelling the credit expansion in NMS may also influence the currency composition of credit. As credit expands beyond the level of domestically available resources, banks attract capital from abroad. This is often done through existing financial links to parent banks residing in the EU. Since domestic bank regulations often restrict open currency positions, banks pass foreign-funded loans to their customers in foreign currency. This also allows them to transfer currency risk directly to borrowers (however, they still bear the credit risk).”

banks' health is associated with a decline in the growth of credit to emerging markets.<sup>22</sup>

### New Ingredients and Their Implications

As mentioned above, one of the main questions is what new ingredients might explain the much stronger effects and much faster spread of this financial crisis across countries and markets. Here, too, it is a matter of piecing together individual facets like a mosaic in order to gain a better overall picture. What is striking in this context is that the current empirical evidence reflects comparatively powerful effects that operate through the financial market channel.

One very new element in this regard is the significant rise in the dependence of some EM banks on foreign wholesale funding and – in part – the structural mismatch of US dollar-denominated assets and liabilities.<sup>23</sup> Large internationally active banks rapidly expanded their dollar-denominated liabilities over the past few years and were able to refinance them through branches in the dollar area. When liquidity in those markets dried up, the tensions stemming from those markets were transferred very quickly through the global financial network to other financial markets.

The banking system in many EMs has financed credit expansion with offshore funds. Local currency assets were funded with short-term dollars and/or euros by local and foreign banks as well. They came under severe pressure when the costs for borrowing dollars in global interbank markets increased, resulting in severe rollover problems.<sup>24</sup>

World Bank calculations illustrate the extent to which closer cross-border ties are influencing emerging market economies, as evidenced by the impact of banking crises and tensions in the money markets in industrial countries. These calculations make clear how much tensions in the interbank markets impact lending in the EMEs and developing countries. Accordingly, an increase in the LIBOR/OIS spread by 10 bp leads to a 3% decline in lending to developing countries, and a 10 percentage point increase in the volatility of the LIBOR/OIS dampens credit growth in developing countries by roughly 1%.<sup>25</sup>

22 P. McGuire, N. Tarashev: Bank health and lending to emerging markets, in: BIS Quarterly Review, December 2008, pp. 67- 80.

23 See Committee on the Global Financial System: Capital flows and emerging market economies, CGFS Papers No. 33, January 2009, p. 117; "As a result of this crisis, some global banks sought to safeguard their consolidated position by shrinking their local currency assets in emerging markets. In some cases, the lower credit standing of some foreign banks made it harder or more expensive for them to raise dollars for on-lending local banks." p. 119.

24 CGFS Papers No. 33, p. 119.

25 The World Bank: Global Development Finance, The Role of International Banking 2008, p. 97.

In sum, a closer analysis of the overall behaviour of banking groups that are particularly active in the area of cross-border lending would therefore seem warranted. It would then be possible to make an even more reliable estimation of the extent to which foreign banks will withdraw lending even from stable EMEs when another country appears to be heading for a crisis. Moreover, such analysis would enable a more solid assessment of how these banks respond to new information.

### Interdependence Between the Real and Financial Spheres

Already these few arguments show that economic realities – in particular in the financial sector – change too quickly to be modelled theoretically or macroeconomically. One thing is certain: it is not only the interplay between the financial markets and across borders which has changed, but also the relationships between the real and the financial spheres of the economy. Financial market developments have a faster and greater impact on the real economy and appear to strengthen international cyclical synchronisation. Traditional transmission channels have become broader and new transmission channels have been added, not least as a result of complex new financial instruments. This is a principal explanation for the high forecasting uncertainty in the current financial crisis. And this is another area in which the financial crisis has revealed clear information gaps regarding the change of these relationships. These transmission channels might be an important explanation for the great surprises with regard to the strength, speed and dissemination of the effects and probably also the tendency towards the entrenchment of the crisis in the real economy.

In this context, four effects are of particular importance:

1. One central implication of financial globalisation is the increasing effect of movements in US dollar interest rates on the world economy. This influence is much bigger than the weight of the USA would suggest.<sup>26</sup> There are at least four explanations for this: (a) contracts are widely denominated in dollars, even between non-US dollar parties; (b) many countries peg their currencies to the dollar; (c) foreign investors play an increasingly large role in US financial market development; (d) US yields and interest rates have been playing a greater role as a determinant of investors' expectations in the real sector of the economy.

26 Accordingly, US interest rate policy shows a significant influence on EME spreads. See also Dailami, Mansoor et al.: Global monetary conditions versus country-specific factors in the determination of emerging market debt spreads, in: Journal of International Money and Finance, Vol. 27, 2008, pp. 1325-1336.

2. Changes in the spread levels are becoming increasingly important worldwide as a leading indicator of economic activity. What is surprising is that, according to World Bank calculations, a 200 bp rise in the EMEs' spread level dampens global economic growth in the following year by 0.9% compared with the baseline scenario. Over the course of the current crisis, however, the spread of EME sovereign bonds over 10-year US Treasuries has risen by just over 600 bp.

In a current study for the euro area, Cihák and Brooks conclude that a strong expansion of corporate spreads has significant effects on real output in euro-area countries. "The results illustrate that a one-standard deviation shock to the corporate bond yield (about 60 basis points) has an adverse effect on the growth rate of industrial output which peaks at about 0.25 percent in 8-20 months."<sup>27</sup>

The evolving financial structures are becoming increasingly informative for economic growth forecasts. For instance, the fact that spreads proved to be a much better leading indicator of domestic economic development in the USA reflects the strengthening of this channel for the interdependence of the financial and real economic sectors also.<sup>28</sup> In particular, this underlines the importance of research that is aimed at improving the recording of dynamically changing financial structures in macroeconomic forecasting models.<sup>29</sup>

3. With financial globalisation and the rapid growth of financial and housing wealth, wealth effects on aggregate demand are also gaining in importance for EMEs. On the basis of data from 14 EMEs over the period from 1990/1 to 2008/2, Peltonen et al. find that wealth effects have risen significantly in the EMEs.<sup>30</sup> A 10% rise in property prices causes consumption to rise by between 0.25 and 0.49%; in the case of stock prices, consumption rises by 0.29 to 0.39%; and if financial

wealth increases by 10%, consumption rises by 0.41 to 0.50%. What is more important is that the sustainability of these effects is evident, which is of great importance for assessing the impact of the financial crisis.

With regard to financial market development, it should likewise be considered that enterprises are guided significantly by the movement of key international stock market indices, especially the US stock market, when forming their business expectations. These business expectations have a direct impact on investment in machinery and equipment, the negative response of which was very quick and strong in many countries, thus sidelining the actual driving force of the economy for a long time – even in countries that had strong investment activity.

4. The leveraging process and the dynamic lending process, which is not restricted to the EMEs, have not only given wings to the development of the financial markets but have also given a strong boost to the real sector.

Even more interesting is that impairment to the financial stability of euro-area banks has a strong effect on lending, which is clearly correlated to the movement of GDP. A rise in (real) lending by 10 percentage points is associated with a rise in GDP by no less than 1.5 percentage points. "The estimates ... suggest that current estimates of losses in the banking sector would mean a negative 2 percentage point impact on GDP in the euro area, but with substantial uncertainty around this estimate."<sup>31</sup>

All of the above-mentioned facets illustrate the strength of the impact of financial market developments on the real economy. These arguments are supported by new OECD estimates which try to explain the unusually high "unexplained component" in the decrease of world trade. A proxy for global finance availability improves the fit of the OECD model of world trade in the fourth quarter of 2008 and the first quarter of 2009, when these financial factors accounted for one third of the fall in world trade.<sup>32</sup>

Empirical studies focusing on the effects of globalisation on business cycle synchronisation are not sufficiently able to capture the effects of financial globalisation. Current studies show that regional factors have a high explanatory value for cyclical fluctuations within the group of industrial economies and within the group of EMEs.

27 M. Cihák, P.K. Brooks: From Subprime Loans to Subprime Growth? Evidence for the Euro Area, IMF Working Paper, March 2009, p. 11; "Based on the estimated coefficients, the effect of bank soundness is significant. The estimate implies that a one-standard-deviation drop in the distance to default is associated with a year-on-year real growth of credit that is 1.5 percentage points lower than otherwise." p. 7.

28 T.B. King et al.: Financial Market Perceptions of Recession Risk, Federal Reserve Board: Finance and Economics Discussion Series, No. 57, 2007.

29 See Deutsche Bundesbank (ed.): Development and application of DSGE models for the Germany economy, in: Monthly Report, July 2008, pp. 31-46; M. Woodford: "I am more concerned about the Fed than the ECB", in: Börsen-Zeitung, 24 July 2008, p. 6.

30 T. A. Peltonen et al.: Wealth Effects in Emerging Market Economies, in: ECB Working Paper Series, No. 1000, January 2009.

31 M. Cihák, P. K. Brooks, p. 15.

32 OECD Economic Outlook, No. 85, June 2009, p. 23.

However, there has been a slight decline in business cycle synchronisation between the country groups.<sup>33</sup> In the current debate, these and similar empirical studies can only be used to a limited degree to assess decoupling. The studies note that the effects of increasing financial globalisation and the associated changes in transmission channels that cross the international financial markets have not yet been examined adequately or covered sufficiently in empirical work, as underlined by Kose et al.

Using macroeconomic forecast models to capture the impact of changes in financial market structures on economic development poses quite a challenge. International collaboration in financial market analysis should also evaluate how to further the integration of the results of financial stability analysis into macroeconomic models. The argument holds true that we will never have the right model; nevertheless, the question of whether the distance between the models and real development can be shortened remains open.

### Challenges Ahead and Conclusions

Essentially, all these arguments show one thing: the key question is no longer whether cross-border linkages and spillovers have increased. These are no more than attendant symptoms of the rapidly advancing and generally beneficial financial globalisation which allows the EMEs and developing countries to gain broader access to long-term capital and thus increase their productivity. This process should not and cannot be reversed, especially since the cost would be greater than the benefit. Instead, it is crucially important to find solutions for both of the following challenges:

- How can the financial system as a whole, as well as the separate systems in industrial countries, EMEs and developing countries, be made more resilient to shocks?
- What implications will this process have for the ties between the financial and the real sectors of the economy? How can national economies cope with the increasing demands on their flexibility to adjust, which stem from

33 M. A. Kose et al.: Global Business Cycles: Convergence or Decoupling?, April 2008, paper presented at the 10th Bundesbank Spring Conference "Central Banks and Globalisation", Eltville, 22-23 May 2008; "During the period of globalization, there has been a modest convergence of business cycles among industrial countries and, separately, among emerging market economies. That is, group-specific factors have become more important than global factors in driving cyclical fluctuations in these two groups of countries." (p. 4); "We also find that country-specific factors have become more important for the group of emerging market economies in the recent period of globalization, while they have become less important for industrial economies." (p. 5).

globalisation and pass not only through the trade channel but also through the financial market channel?

With regard to the first point, the G-20 action plan adopted in Washington and the work of the Financial Stability Board have been important in setting the course. In this case, it is essential to strengthen the financial markets' ability to return more rapidly to equilibrium. This requires not only greater transparency but also stronger incentive structures via tools such as reinforced liability rules, which are also applied in the real sector.

This also requires a stronger regulatory and supervisory framework. Despite the fact that foreign bank entry can be accompanied by an improvement in local supervisory capacity, the significant increase in the scope and complexity of global banking leave important responsibilities for local authorities. Host country supervisors have to evaluate carefully their own responsibilities and conceptual responses against the background of experiences made with this financial crisis. As Turner underlines, they cannot just rely on assurances from major foreign banks that risk exposures are being properly managed.<sup>34</sup> This argument is especially true in view of the fact that further political discussion could result in stronger capital and liquidity requirements for foreign banks and their subsidiaries, which imply more responsibilities for host supervisors.

The global monitoring of the dynamically changing transmission channel is a key challenge ahead. We should increase the sensitivity to changes in this transmission channel. In this context, it is important to monitor the strategic behaviour of institutional investors operating internationally and globally active banks. To what extent could the rebalancing activities of these investor groups explain the vulnerabilities of EMEs with stable macroeconomic frameworks? How closely are these rebalancing activities related to boom and bust cycles and how stable are these relationships? In-depth analysis in this field and the closing of related data gaps might have high potential to achieve progress in global monitoring and the assessment of financial soundness and vulnerabilities.

Most of the effects presented above are short-term and cyclical. The structural aspects and, in particular, the following questions are more important and relevant for assessing the situation going forward:

- To what extent has there been an expansion of financial structures in the financial sector in recent years,

34 P. Turner: Banking Consolidation in the Emerging Market Economies: Foreign and Domestic, in: G20 Proceedings, Competition in the Financial Sector, 2008, pp. 113-144.

which would now bring the expectation of a lengthy contraction of this sector?

- To what extent have the structures in the real sector of the economy adapted to these distortions, which will contribute to a longer-term adjustment in that sector as well? To what extent, then, have distortions in the financial sector led to over-inflated expectations in the real sector?
- What criteria and relationships can be used to measure “equilibrium structures” between the financial and real sectors of the economy? Is there a mean reversion here, too? This question is also of key importance at the moment as it could provide more transparency regarding the level at which stabilisation of the financial sector is desired. Recently, some simple estimates have clearly demonstrated that even a slight shift in the assumptions leads to huge differences in the figures concerned.

The conclusion to be drawn is that the financial sphere is gaining in importance over the real sphere. Global financial factors are increasingly affecting national financial market developments. Cross-border financial linkages have become significantly tighter and more complex.

Via this channel, the impact of global financial determinants on economic activity is growing ever stronger. The effects of portfolio rebalancing and the increase in global credit activities – which, at least in recent years, have been less based on the fundamental developments in the respective countries but have nonetheless had a lasting influence on them – are playing an increasingly important role. For this reason, more and more countries – including those with stable macroeconomic conditions – are being affected by this financial development. It remains to be clarified whether and in what way the concepts behind surveillance, early warning indicators, etc. will need to be reviewed. If the early warning or financial soundness indicators did not prove reliable in the crisis and did not accurately show the accumulation of financial distortions beforehand, to what extent does this demonstrate that they include too few or irrelevant financial market indicators? In particular, this raises the question of the degree to which cross-border financial linkages and their implications are taken into account in the existing procedures. Moreover, numerous analyses have highlighted weak points in the framework of international financial markets and excessively risky developments. Making the results of the ever more complex analyses of financial stability policy more transparent and including them in the political debate is essential.