

## THE IMPACT OF FINANCIAL CRISIS AND INSTITUTIONAL REFORMS DEPLOYED IN RESPONSE TO THE CRISIS ON ECONOMIC GROWTH

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**Abstract:** Institutional changes made in financial markets in response to the crisis became the intrinsic element of anti-crisis measures, especially so at the stage of preventing excessive risk exposure and identifying potential threats to financial stability. At this point in time it is difficult to say precisely, what the effects (long-term in particular) will be of new institutional solutions and whether they would prove effective in fending off the probability of any future crises. Beyond doubt, the current crisis led to re-evaluation of previous perceptions concerning liberalisation of financial markets by exposing their scale and putting strong emphasis on interdependencies between liberalisation, financial stability and long-term economic growth.

**Keywords:** financial crisis, anti-crisis measures, financial supervision, institutional reforms, institutional regulations, financial stability, effects of institutional reforms, economic growth.

### 1 Introductory remarks

The time before the crisis covers several decades of deregulation, liberalisation and informal changes in core objectives of financial supervision institutions, which changed from assuring broadly defined security and stability to providing easy access to credit. Simultaneous development of IT technology was another contributing factor stimulating financial markets to grow, intensification of capital flows, popularity of ever-complicated financial operations (to a great extent detached from economic processes taking place in the real economy) and enabling to engineer new financial instruments and market segments. Because supervisory institutions failed to exert control over the situation, the last hope laid in markets' ability to self-regulate. That faith, with regard to financial markets, proved to be nothing but naive.....

A deficient regulatory system played a crucial role in igniting the financial crisis. There are three major issues in that respect: flawed microprudential regulation, narrow framework of the regulatory system and relatively underdeveloped macroprudential regulation.

In the first area, the weakest spots are underestimating the risk carried by non-regulated financial institutions (shadow banking system) for balance sheets of commercial banks, as well as no liquidity regulation, which would primarily focus on institutions financing through stock and markets showing considerable divergence between term structure of assets and liabilities.

As far as the scope of regulatory system is concerned, seemingly the most important factor is the sheer size of non-banking (and thus improperly regulated) financial institutions. Over past several years, they have become systemically important, and their standing had major consequences for the crisis. Owing to the impact of those institutions on global financial system, negative effects of that malpractice were commonly felt. In this context, the words of A. Greenspan from October 2008 are particularly noteworthy: *"I made a mistake in presuming that the self-interests of organisations, specifically banks and others, were such that they were best capable of protecting their own shareholders and their equity in the firms (...). The free market collapsed. I still don't fully understand what happened"*. Yet back in 2006 Greenspan claimed that *"Because the markets have become too complex, to react to any human intervention, the most appropriate anti-crisis policy is seemingly the one, which ensures the highest market flexibility - freedom of action to the most important market participants. (...) Regulation, by nature, constrains the market's freedom of action, and it is that freedom to operate efficiently which can restore the market balance"*.

The crisis also revealed that the control of systemic risk requires macroprudential elements of regulatory system to be enhanced and the pro-cyclical character of banking regulations must be narrowed if not outright abolished.

So it became clear that changes to the institutional *status quo* are required as well. This conclusion came with market developments undermining the validity of original expectations that economic upturn triggered by wide-scale fiscal packages and unconventional monetary policy measures would be permanent. The doubts, however, that the private sector devoid of stimulus packages would not be able to sustain its growth rate once stimulus packages are removed and thus would fail to restore economic growth sadly begun to be the case. Under conditions of anaemic economic revival, previous expectations that economies on their own record would grow their way out of soaring deficit and debt, proved to be unrealistic.

Had the crisis ground to a halt after it had first materialised, there would have not been so many arguments substantiating institutional reforms. Initial economic upswing led many entities to believe that fears concerning the scope, character and projected aftermath of the crisis were exaggerated to a major extent. The need to implement institutional reforms in order to safeguard the market economy from even more stupendous crises in the future, could have easily gotten in the way of more optimistic outlook, where economies would have reverted to the business as usual. One should bear in mind that despite substantial arguments in favour of said reforms, systemic reforms - due to consequently arising political pressures - are unpopular. From this standpoint, an initial economic revival then slipping back into recession could potentially bring positive long-term consequences.

This paper aims to present institutional changes in financial market which were undertaken in a bid to tackle the crisis and determine their consequences. Square one for this analysis must be the awareness that the institutional framework for financial markets primarily in terms of financial supervision were the underlying impetus fuelling the financial crisis. Then discussed are actions undertaken by supervisory institutions and institutional reforms deployed in the wake of crisis. Potential areas of future institutional changes in financial market have also been covered. Finally some controversies surrounding the impact of undertaken institutional reforms on long-term economic growth have been discussed.

### 2 Institutional reforms of financial supervision made in response to the crisis

Growing number of financial institutions, including non-banks and para-banks, emergence of new financial instruments complex in their nature and detached from real economic processes, commonly abused leveraging, concurrent IT development and globalisation of markets all meant that supervisory bodies were no longer capable of exerting effective control. All the more, because legal changes in the pipeline were pro-liberalisation and aimed to loosen the regulative control instead of tightening it. It was the sheer magnitude of the crisis which exposed the need for financial supervision change. The natural first step was to introduce new requirements and guidelines concerning capital reserve levels and the permissible exposure to risky instruments. The fundamental intention was to improve the financial supervision in a bid to stave off future crises. Also introduced was regulation concerning hedge funds, including the requirement to keep records of trading history past certain predetermined levels. Non-banks' came into spotlight,

<sup>1</sup> Non-banks fill the gaps in financial sector, which are not attractive enough for banks. They normally offer the same services as banks (deposits, loans), but also more risky ones (investment, risk management, investment advisory, trading services, brokerage).

which are regulated in a dissimilar manner to banks (*Treasury Department Outlines Reforms...2009*).

Institutional reforms made during the crisis were supposed to improve four areas:

- a) correct risk assessment,
- b) consumer and investor protection,
- c) removing loopholes from the system,
- d) tightening international collaboration.

Critical in US reform was establishing the Financial Stability Board, which features as members all supervisory institutions and is headed by the Secretary of the Treasury. Institutions with assets exceeding 50 billion dollars have to comply with more rigorous legislations than smaller banks. Furthermore, the list of companies supervised by the Fed in line with "more rigorous" criteria can be extended by the Board adding any number of non-banks. Because majority of those institutions - insurers, investment funds, hedge funds - are not supervised by any federal agency, one could expect that in light of that information the Board would not dismiss Fed's applications to extend its regulatory supervision to new entities. The novel character of this solution lies in empowering Fed to determine itself - through the Board - its competences. Moreover their scope is not constrained by considerations which incentivised introduction of that legislation. For instance, bank solvency is supervised, because deposits are state guaranteed, thus generating *moral hazard* - bank neglects risk monitoring because should it topple over, it would be bailed out by the government. New is applying that legislation to companies, previously not state subsidised to any extent - the fact they could potentially cause turbulence in the markets would be a sufficient reason on its own to supervise them. The Dodd-Frank Act, providing legislation for supervision over non-banks is such a flexible framework that making those decisions is in essence a discretionary matter. The Board can subject any company to ever-rigorous regulation once it concludes that financial hardship, nature, reach, scale, concentration, degree of interdependency, and product portfolio offered by the non-bank could potential harm financial stability. That piece of legislation empowers the Board and essentially the Federal Reserve to supervise any financial institution in the United States. Furthermore, the so called Volcker rule prevents any "bank entity" - i.e. bank, its parent company and all subsidiary companies - from propriety trading i.e. with their own assets, in order to limit the scale of risky trading.

As part of institutional reforms, the Consumer Financial Protection Bureau (CFPB) was established, which is envisaged to supervise the mortgage and financial product markets and protect American savings against unforeseen risk (*Treasury Department Outlines Reforms...2009*).

In the Eurozone it is the ECB which guards financial stability. However, due to strict financial integration within the EU area and independent central banks in EU member states with their own currency, the financial stability within the Eurozone was kept by three Committees sat by representatives of national supervisory bodies. At the European level, financial system monitoring has been within responsibilities of the Economic and Financial Committee. The crisis, however, proved the supervision in its current form to be ineffective and insufficient, consequently leading to establishing new EU supervisory institutions, which are charged with assessing risk and financial stability within the EU on an ongoing basis, and should a need arise, act through adequate guidelines and recommendation to mitigate the risk of repeat crisis.

The European System of Financial Supervisors was established in 2011. Main objective of the system is to assure that legislation concerning the financial sector is implemented without

They do not, however, hold licences from their operations and are neither diligently supervised nor controlled by financial supervision. Hence they make more risky investments, consequently increasing "financial brittleness" and risk of turbulence in financial markets. During stable periods they help to more effectively manage financial resources, but their operations are pro-crisis once the economic climate becomes less sturdy.

generating potential threats to the financial stability and keeping the financial system commonly trustworthy. It also protects financial services consumers. The system includes the European Banking Authority, European Insurance and Occupational Pensions Authority, European Securities and Markets Authority and national financial supervision authorities. Also established was the European Systemic Risk Board keeping macroprudential supervision over European financial system. The Board is envisaged to counteract systemic risks threatening financial stability within the EU and keeping those risks in check. Those risks might inherently arise from relationships between financial institutions and the markets, as well as from macroeconomic and structural factors.

New legal framework was also put in place. Some of the new legislation was passed already during the crisis, whilst some of has been analysed and negotiated. A directive was introduced concerning higher guaranteed deposits. Another concerned capital requirements. Also passed was legislation regulating rating agencies aiming to eliminate situations similar to pre-crisis conflicts of interest. Deployed measures aimed to make the financial sector more transparent, better and more effectively supervised, whilst keeping consumers and businesses better protected (*Regulating Financial Services...*, 2010). Due to regulatory divergence between member states, both the Board and supervisory institutions set out to strengthen sanctions dished out for failing to comply with current legislation or transposing it. They are also intended to make the breaching party feel the pinch and ensure appropriate sanctioning regimes are in place (*Strengthening sanctions...*, 2010).

As far as emerging markets are concerned, it is fair to say they were considerably less affected by the crisis compared to highly developed countries. There were even opinions that we might witness emerging markets being flooded with capital inflows due to perception they are "safe havens", and investing in assets in those countries would be an expression of "flight to quality". The argument substantiating the "decoupling" hypothesis said that in the aftermath of 90's crises, the most affected countries rose to the challenge and put firewalls in place considerably increasing their resilience to similar events in the future. Responses to the previous crises not only did show as spontaneous microeconomic changes, but also as changes in macroeconomic policy, exchange rate regimes and institutional solutions. Those countries reinforced their macroeconomic foundation and have undertaken numerous regulatory and institutional reforms, mainly concerning the broadly defined financial sector. The contagion effect did make its presence felt later and with less ferocity.

The measures deployed by emerging economies in response to the current crisis were predominantly aimed to stop the economic turbulence from spilling over the entire economy (Kawa, 2011). On one hand anti-crisis measures - a mix of economic policy and institutional changes - used by individual countries were different, but nonetheless some generalisations and classification could be drawn (see *Annual Report*, 2009):

- higher liquidity of own currency (extending stimulus action with the central bank, accepting wider range of collateral);
- higher liquidity of foreign currency (bilateral and multilateral swap agreements, using forex reserves for bank recapitalisation loans, suspending credit limits in foreign currency for banks);
- supporting financial instrument prices (restricting short selling, suspending the mark to market rule<sup>2</sup>, troubled asset relief funds);
- guaranteeing liabilities and bank recapitalisation (increasing state guaranteed deposits, wider range of deposits eligible for state guarantees, recapitalisation of national banks and other financial institutions, running credit guarantee schemes to support business).

<sup>2</sup> Stock valuation rule based on current value.

As far as Poland is concerned, measures deployed by the Polish Financial Supervision Authority (PFSa) together with National Bank of Poland were supposed to incentivise banks to increase their capital ratios as opposed to paying out dividends. The recommendation "S" was amended (first implemented in 2007), which in its new shape is less beneficial for the banks due to its pro-consumer character. In 2008 on the other hand, recommendation "T" was drafted, which was intended to tighten lending standards in order to avoid any future financial turbulence. Its implementation, however, was postponed. Under crisis circumstances and lower credit availability, it could just add fuel to the fire and exacerbate negative crisis repercussions for financial markets.

Both those recommendations (SII and T) are supposed to be complementary. Recommendation T should above all limit the risk of ill-founded creditworthiness assessments through creating and deploying databases - both internal and external, as well as limit excessive lending, especially to poorer customers. Another important matter is factoring in economic cycles when analysing creditworthiness in order to prevent pro-cyclical credit expansion, which markedly took place in the USA (Recommendation T..., 2010, p. 2-5). Recommendation SII is intended to improve supervision over credit exposure to mortgage backed loans, financing property through receivables from the non-financial sector (Recommendation S..., 2011, p. 2).

Also interesting are new institutional regulations issued by the Basel Committee. Main stipulations dictated by capital adequacy standards (Basel III<sup>3</sup>) include requirement for the bank to hold higher common equity (4.5% compared to previous 2.5%) and raised Tier 1 capital (6% compared to previous 4%) of risk-weighted assets. Unchanged remains required total capital to risk-weighted assets ratio (min. 8%). Proposed has been a so called conservation buffer, i.e. additional common equity to cover the 2.5% of risk-weighted assets. This measure will not have been obligatory, however, banks without that buffer will have to reckon with caps imposed by supervisory institutions on profit sharing and executive bonuses. Furthermore, a so called countercyclical buffer will have been introduced, which is dependent on specific country standing (max. 2.5%). Banks will also have to comply with maximum leverage ratios, which is calculated based nominal as opposed to credit-weighted value of assets. Another recommendation is the liquidity coverage ratio. It requires bank to hold sufficient high-quality liquid assets to cover its total net cash outflows over a month should substantial financial turbulence occur. Higher capital requirements intended by the Board might harm short-term credit availability in the economy and decrease bank performance, however in the long run they should increase stability of the global financial system (Basel III, 2012).

To summarise it is fair to say that measures undertaken by market regulators (those measures varying by intensity) have targeted minimising the risk of future financial turmoil of the same magnitude. The financial crisis has revealed a plethora of mistakes and weaknesses of financial watchdog authorities, but above all it undermined the naive belief in market self-regulation, common sense and responsibility of financial institutions. It triggered the need to deploy far-reaching national aid programmes, involving to greatest extent central banks. It also gave a strong impulse to undertake institutional reforms in financial markets.

At this stage, one could pose a question about projected direction of institutional changes in financial markets, especially in the context of supervisory institutions' evolution. The pro-cyclical behaviour of financial markets is not only the effect of intensified credit lending dictated by banks reacting to changes in creditworthiness of business, but also the consequence of financial institutions' expectations towards projected market standing. The problem is though, those projections might be

affected by interchangeable downturns and upturns. At the end of the day, favourable economic situation could compel banks into thinking it could become nothing but better in the future. This vicious circle might lead to softening criteria for creditworthiness assessment. Any future changes in supervisory systems would have to restrain the banks from such snowballing practices. This type of changes is dubbed dynamic regulation, because in essence they aim to prevent banks from eroding their credit criteria during upturn periods. Institutional solutions will beyond doubt also target to reduce procyclicality through introducing different capital requirements. Banks are then required to maintain appropriate ratios of capital to offset potential losses calculated using 10-day VaR. However, because the scale of losses is contingent on price variance which decreases as the economy goes into full swing, the system of capital requirement has a pro-cyclical impact on credit lending. Those requirements could be modified towards maintaining ratios calculated based on long-term losses (Sławiński 2010, p. 154).

New entrants in discussion about the validity, reach and institutional framework of financial supervision refer to positioning of the watchdog. Tendencies to consolidate creating vast financial conglomerates, ever-stronger links within the banking sector, insurance-linked securities and insurance sectors could play into the hands of proponents advocating for regulation by supervisory institutions. On the other hand an argument has been raised that an integrated financial supervision not necessarily would identify risk better than an industry-specific watchdog. This view has also been substantiated by international solutions (international system of regulation and supervision) which are industry-specific in their nature (Davies and Greek, 2010, p. 72).

The position of financial market watchdog (banking supervision) within the structure of central bank has also been a bone of contention. The sheer diversity of theoretical arguments makes developing a single universal model impossible. There seems to be a consensus as to how accurately define the reach of supervisory institutions, deliver precise intervention rules as well as manage communication and coordination of actions undertaken by supervisory institutions, since these have been identified as elements underpinning effective supervision (Subbarao, 2010, p. 27). One should bear in mind though that the efficacy will have been limited due to financial institutions running one step ahead of supervisory institutions. In effect, probably most of regulation will have been adaptive rather than preceding.

### 3 Consequences of institutional reforms concerning financial markets for long-term economic growth

Regardless of short-term effects following from anti-crisis measures and changes of institutional nature, questions have to be asked about their long-term consequences. First and foremost, some doubts are cast over the impact of crisis on the path of potential GDP. Provided it has taken its toll, how did taken measures and reforms help economies to get back on previous tracks of economic growth. Secondly, taken measures have to be scrutinised whether they are able to repel similar crises in the future through decreasing economy's volatility or on the contrary - whether they introduce nothing but disturbance to current institutional order thus causing new waves of the current crisis or similar downturns somewhere down the line.

Implementing institutional changes, determining admissible liberalisation and developing new solutions to financial supervision over financial markets have become critical issues, even more so since they not only determine output levels, but also influence their long-term growth rate. The impact of crisis on long-term growth is usually analysed from these angles (*Word Economic Outlook...*, 2009, p. 121-123).

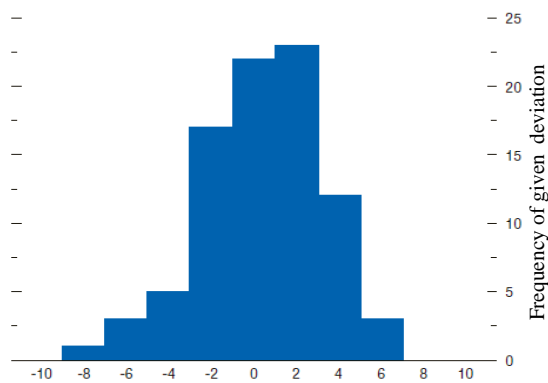
- workforce - during crisis employment opportunities become scarce and current employees might find themselves asked to retire early; on the other hand, during difficult times people looking for additional income might look for other jobs;

<sup>3</sup> Basel III was introduced on 26 July 2010, but it should come to full effect by January 2019.

- employment level - during crises unemployment rises, mainly due to increasing structural unemployment. It is caused by temporarily greater divergence between qualifications and economic demand and potential retraining is a long-term process. Strict labour law can pose further challenge. Highly skilled specialists also find it difficult to change employment.
- investment and capital retention - the scale of investments and capital build up rates decrease, since companies have limited access to credit. Financing is also that much harder to obtain due to low asset prices reflected by business valuations and worse creditworthiness;
- effectiveness and efficiency - relationships found between the two remain ambiguous. On one hand the financial system becomes less effective in financing investments especially as far as high rate of return and high risk projects are concerned (financial institutions are facing away from excessive risk). Effectiveness is also lower due to lower R&D spending. On the other hand, crisis cleanses the economy from worst performers in the marketplace.

Empirical analysis concerning a group of several dozen countries affected by recent crises shows (*The State of Public Finances*, 2009, s. 121-123) that output level drops compared to pre-crisis periods. This stems both from long-term employment decrease and lower utilisation of factors of production. An important factor deciding how deep is that drop is the investment to GDP ratio - the higher was that ratio pre-crisis, the higher were losses caused by the crisis. This is simply put down to the fact investment is the most volatile component of aggregate demand. Past experiences show that anti-crisis measures deployed by both monetary and fiscal authorities with little lag to financial turbulence are able to successfully mitigate output level drop. In the light of IMF's findings, over seven years past the crisis output drops have been noted of 10% compared to projections based on previous trends. Over medium-term the growth rate have used to return to pre-crisis levels and long-term tendencies did not buck the trend very much (for majority of countries that deviation did not exceed +/- percentage points compared to pre-crisis).

Figure 1. Fluctuation of growth rate post crisis against pre-crisis trend



Fluctuation of middle-term<sup>(\*)</sup> growth rate against the trend (percentage points)

<sup>(\*)</sup> middle-term growth is defined as average 5-year growth rate starting 4 years post the crisis

Source: *World Economic Outlook: Sustaining the Recovery*, MFW, October 2009, p. 127.

When attempting to project consequences of institutional changes for long-term economic growth one should bear in mind that nowadays, ever-increasing emphasis is put on institutional underpinning of growth. Having reviewed current state of arts both theoretical and empirical, Breuer (2005) points to the need to isolate the so-called fourth generation models<sup>4</sup>, whose

<sup>4</sup> First generation crises took place between 70s and 80s of the XX century (crises in Mexico, Argentina, Brazil). The underlying cause was ill-founded macroeconomic policy incompatible with fixed exchange rates. Those countries pursued expansive

distinguishing feature is importance pinned down to broadly defined institutions. The author points out variables which to a great extent influence the modelled economic phenomena, namely elements of political system, political instability, social system, ethnic unrest, culture, social standards, corruption, deliverance of contractual obligations, ownership rights and shareholder protection, law sources, financial regulations and supervision etc. In her opinion, those variables are important because they influence information, uncertainty and transactional costs thus the effectiveness of decision making. The author is far from replacing variables found in previous generation models, quite the contrary, she attempts to explore their genesis. Hence, she intends to answer the question "what institutional factors set the stage for hyperinflation, loss of capital reserves, herd behaviour and political inconsistency" (Breuer 2005, p. 79).

An interesting element of the Breuer concept is pointing to two opposing effects of a crisis. On one hand, crises intensify uncertainty about all kinds of transaction, relations and decision making, but they also reveal institutional, political and economic weaknesses of economies which all by themselves could cause a crisis. On the other hand, economic slumps can incentivise reforms, which "could prove beneficial for the economy and limit the risk of repeated crisis in the future" (Breuer, 2005, p. 2). Drazen and Grill (1993, p. 598) note that "in the long-term crises increase general prosperity and from that standpoint they are even desirable".

The role of institutional factors is also stressed by other authors attempting to generalise experiences of countries developing under conditions of financial crisis. According to Mishkin (2006) key to economic growth is institutional development defined more precisely as tool promoting effective ownership rights and efficient financial system. Abiad and Mody (2005) have taken a different angle on relationship between financial systems and crises. They strive to determine to what extent economic downturns are a trigger for reforms in the financial sector. The nature of that trigger depends on the type of crisis. A balance-of-payments crisis increases probability of reforms, whereas a banking crisis - withdrawal from legislative reforms since if continued, short-term they could hurt valuation of existing banks. This situation looks differently post the crisis. The speed of implementing changes into financial system is among factors critical to length of the recovery period (Mishkin 2006, p. 165).

By referring to the impact severity and strictness of financial supervision over financial markets has on economic growth, Tornell and Westermann (2005) prove that over past two decades, regulatory authorities have addressed overproduction of financial services by liberalisation. Liberalisation of financial markets has been closely followed by a range of financial innovations. Also the number of individual and institutional investors allocating their assets on financial markets has gone up. Novel financial instruments have been used by market participants to hedge against currency risk, turbulences in equity markets and interest rate changes. Furthermore they enabled speculation. There is evidence that currently only approx. 10% of international financial flows are used for purposes of funding commerce and investments, whereas 90% are pure financial

fiscal policy and the gaping hole in budget deficit was filled by central bank loans. This had led to excessive and uncontrolled inflationary pressures and then difficulties to maintain the currency peg preventing exchange rate from drifting too far from desired rate. Under those circumstances, it became possible to mount a speculative attack with great probability of success. Second generation crises came between 1992 and 1993 to Western Europe (France, United Kingdom) which back then were participating in ERM. The system imposed fixed exchange rate with tight nominal band ( $\pm 2.25\%$ ). Maintaining the exchange rate within the narrow limits was problematic, consequently creating advantageous conditions for currency speculators, whose pressures were directly the factor behind the crisis. Hence, second generation crises were caused by external factors i.e. a speculative attack. Third generation crises took place between 1997 and 1998 in South-East Asia (Malaysia, Indonesia, Southern Korea, Filipinos). Back then, the macroeconomic situation of those countries was very good - they enjoyed budget surpluses and low inflation, thus the crisis was a major surprise both for investors and rating agencies. Asian crises were caused by malfunction of microeconomic elements i.e. enterprises, especially the banks which took on their balance sheets excessive risk related to bad loans. Those crises, similarly to first generation crises were caused by internal factors.

transactions which to a great extent are of speculative nature (Pilbeam, 2006).

An interesting observation was made, that financial liberalisation often creates interchangeable booms and recessions and that weakness of financial system was, counter intuitively connected to rapid GDP growth. Side effect of that situation is vulnerability of medium-level developed countries' economies to crises. The authors, however, warn against hastily jumping to conclusion that authorities should intervene in financial markets to achieve higher growth rate. They represent the opinion that the very same mechanisms connecting liberalisation with growth enable higher long-term growth rate, but at the same time they introduce strong cyclical fluctuations.

Tornell and Westermann identify two consequences of financial liberalisation: direct effect - positive for growth through lifting restrictions on increasing indebtedness what consequently stimulates economic growth; and indirect effect - negative due to increasing probability of financial crisis erupting. The above-mentioned relationships give a net positive effect of liberalisation on growth. Empirical research conducted by Tornell and Westermann shows that financial liberalisation has positive effect on economic growth rate, but at the same time it significantly increases the probability of financial crisis. Furthermore they prove that positive relationship between liberalisation and economic growth is not caused by countries far from undergoing an economic slump, but those affected by financial downturn. Hence there is a relationship between crises and long-term economic growth. This finding does not mean, however, crises have either positive effect on or generate economic growth (Tornell, Westermann 2005, p. 30).

Another "stylised fact" formed by Tornell and Westermann says that medium-level developed countries implementing financial liberalisation experienced financial deepening where growth rate of indicators concerning financial sector outstripped the GDP growth rate. That process had not avoided turbulence though, and the volatility it underwent was caused to a great extent by weak financial system. Consequently credit availability fluctuated abruptly fuelled by cyclical periods of downturn and upturn. During boom periods credit availability had historically been high, and lenders in tandem with banks accepted high risk exposure.

Tornell and Westermann indicate that shortly before the crisis, banks had loaned on average 3% more compared to periods of "stability". Favourable economic climate had impelled the financial sector to push the leverage beyond reason without putting in place adequate hedging procedures. Deepening crisis generated depreciation reaching as much as 10% even three years down the line. Indebtedness of the banking sector denominated in foreign currencies built up rapidly over prosperity periods, with revenues remaining at unchanged levels. Hence the probability banks would become insolvent increased, causing runs on banks and mass cash withdrawals. Consequently, the economy became unstable and vulnerable to crisis effects. Among factors behind the crisis was also worsening quality of bank assets and build-up of "bad loans". Although the probability of excessive leverage causing crisis any given years was relatively low, accumulation of those effects had eventually upset economic stability. During the credit crunch the value of loans had fallen dramatically<sup>5</sup>. Devoid of liquidity banks were forced to limit credit availability what caused the entire sector to collapse. What is interesting, the drop in loans outstripped the dip in manufacturing output. Moreover, during periods of economic slump the banks pursued policy of

narrowing down the portfolio of financial instruments what intensified consequences of the crisis.

In this context Tornell and Westermann claim another rather surprising "stylised fact", namely that over the past two decades the highest economic growth rate was observed in economies experiencing lending booms and busts. On the other hand the countries where credit availability increased subtly, saw lower growth figures. Quantitative data explicitly shows that countries where credit growth followed a steeper path (Chile, Korea, Thailand) were subject to cyclic fluctuations, but nonetheless enjoyed stronger growth. On the other hand, countries where credit lending fell only slightly (Bangladesh, Morocco, Pakistan) had weaker economic growth. Hence one could arrive at a conclusion that a "bumpy" credit growth path leads to faster GDP growth. Note, however, that despite wide fluctuations of credit availability are usually correlated with more rapid GDP growth, this combination does not mean that crises - on their own accord - are beneficial for economic growth. The sheer costs of tackling recession and recovering the economy to restore its growth trajectory are tremendous.

Changes in production output during and post crisis are a crucial point in discussion about "stylised facts". Fundamental "fact" here is a v-shaped GDP graph: one of the most surprising observations made about financial crises during the 90s was not the scale of crisis-induced GDP plunge, but the speed at which production output recovered. GDP component deviating the most from pre-crisis levels is investment. Prior to the credit crunch it was as much as 14% higher than over "stability" periods, whereas post crisis its decline exceeded 5%. That significant fluctuations were not observed in case of remaining GDP components: consumption and net exports both pre and post crisis remained unchanged, while government spending did not vary more than  $\pm 5\%$  (Tornell and Westermann, 2005, p. 54-55).

Another "stylised fact" is that in the aftermath of financial crisis permanent production decline occurs, because growth rate post-crisis is generally lower than an average growth rate pre-crisis. Unlike recessions part of economic cycles, financial crises are not fluctuations bucking the trend and they are capable of changing that trend (e.g. through mechanisms composing so-called path dependence). Research into financial crises has also proved that long-term production output decline during banking crises outstrips that during monetary crises.

The concept of institutional changes having influence on long-term economic growth has been reflected by the aforementioned theoretical model of crisis mechanisms developed by Tornell and Westerman. Their approach is based on drawing a line between goods contributing to net exports (T) where the dominant force are companies with access to global capital markets and sectors making no contribution (N) where the majority are small enterprises funded by banks. Each of the sectors reacts differently to the shocks, and crucial for widening fluctuations from trend is real exchange rate. Although sector N growth outstrips that of sector T's during boom periods, but at the same time during bust periods it experiences deeper output drops and recovers longer to pre-crisis levels. There are two important institutional differences between the two sectors: N sector enterprises have major difficulties delivering on their contractual obligations (this is particularly visible when liberalisation runs free without legal and institutional reforms) and lenders are underwritten by governments should they go belly up due to the crisis.

The authors built a theory that different groups of countries (moderately developed countries vs highly developed countries) react differently to crises. The mechanism behind different reactions is based on asymmetry between sectors in terms of accessible funding, differences in enforcement of contracts and tie up between that market imperfection and state guarantees for enterprises. They explain this mechanism as follows: difficulties with enforcement of contracts combined with state guarantees create severe financial constraints impelling borrowers to

<sup>5</sup> In moderately developed countries experiencing abrupt changes in economic climate, value of credit loans goes through three phases. During boom times credit lending grows rapidly, when economy slips into recession it slumps considerably and then - as the recovery progresses - it recovers gradually. The graph showing climbing credit usually varies significantly from the trend line. It is characteristic, however, that credit lending in India, country with strictly regulated capital flows, grows showing low average, low standard deviation and asymmetry coefficient close to naught, whereas in Thailand, where liberalisation runs deeply in the system, it shows asymmetric distribution and high standard deviation.

increase their risk exposure (enterprises engage in activities with higher risk profile because should they experience crisis-induced turbulence the government will step in), often in form of currency mismatch (debt in denominated in foreign currency, whereas revenues servicing that debt - in domestic currency). Fluctuations of real exchange rate defined as relative price of T goods compared to N goods intensify the disturbances. This creates circumstances of so-called *risk economy* where credit lending is strong and intense boom and bust periods are probable. Despite being financially brittle and costly to recover from downturns, in the long run this type of economy performs better than *safe economy*. This is possible due to higher risk appetite which enables enterprises with limited access to finance (in majority representing sector N) to borrow and invest more during periods of "normality". Hence future crises would have to be relatively rare, otherwise enterprises would have become risk averse. All in all, the aggregate growth in the N sector caused by higher investments during periods of "normality" is greater than capital losses and shortfall of credit during a crisis. This spills into economy bringing higher average long-term growth across all industries, because T sector enterprises use higher volumes of necessary semi-finished products provided by sector N. The above analysis leads to a simple conclusion that generally in the long run an economy taking on "more risk" is a favourite to achieve higher growth rate (Wojtyna, 2008).

#### 4 Final remarks

Long-term institutional reforms implemented as a response to the crisis boil down to assuring stable financial framework and preventing future financial turbulence. Preparing legislative framework, adequate legislation and regulations, developing new and more effective mechanisms is a time-consuming but necessary process. Effectiveness of those measures can only be verified once another crisis is successfully (or not) averted. There is no doubt excessive liberalisation of financial markets played an important role in eruption of the credit crunch. On the other hand though, the subsequent abrupt acceleration of growth rate was fuelled by innovation and ingenious ideas. In the context of Schumpeterian creative destruction one could expect that the crisis - purifying the economy through bringing the weakest companies and institutions to their knees and discontinuing least promising projects - could gear the economy for faster long-term growth. In accordance with that approach, excessive regulation of financial sector and restrictions on capital flow could have a negative influence on post-crisis recovery by limiting opportunities for financial innovation, creating new banking and insurance products and reaping benefits from globalisation.

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