FINANCIAL INTEGRATION AND ABILITY TO CONDUCT AN INDEPENDENT MONETARY POLICY. CASE OF JAPAN AND THE USA

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Abstract

The paper presents a case of high financial integration between two countries with the aim to show how monetary policy responses to: (a) high level of economic integration and (b) asymmetric shocks. With the use of a simple and intuitive method for capturing monetary policy stance convergence in monetary policies in both countries is recognized. Then, a time series of a correlation coefficients is composed on the quarterly data (4-quarter moving window). This analysis allows for recognizing periods of convergence and divergence in the way monetary policy was conducted in both countries. The convergence periods were observed in the absence of regional and global debacles. However, when regions and specific countries were hit by asymmetric shocks the response of monetary policy in the affected territory led to a significant divergence. The reasons for high similarity in the monetary policy stance are associated with the high financial integration. Under such conditions it is impossible to maintain differences in rates of return in the long run between domestic and foreign assets. This is because financial integration allows for capital flows leading to equalize this variable. As a consequence monetary policies in financially integrated economies converge in terms of the current stance. However, as long, as there is a free float or in general – not hard peg – there is a room for an independent monetary policy when the system suffers from an asymmetric shock. The case presented in the paper shows that this kind of shock is not only a theoretical concept and emerges from time to time in the global economy. Ability to conduct independent monetary policy is then of high value. This observation is in turn an argument against monetary integration, since currency union member states do not have this option and economic policy response is available only via fiscal policy..

Keywords: *monetary policy, asymmetric shock, financial integration, MPSI.*

JEL codes: *E44, E50, F33*

1. Introduction

Economic integration covers many dimensions of activities both in private sector and at institutions shaping economic policies. There are clear relationships of bipolar direction

impact between strengthening international cooperation and effectiveness of achieving domestic policy goals. Regional integration initiatives in the form of customs unions, common markets and full monetary unions result in sequential giving up autonomy in trade policy, sectoral policies and monetary policy. These are however results of conscious decisions and an international behavior. It is expected that micro- and macro-level benefits overweight any potentially associated costs. There is however another dimension of economic integration of a global reach, which has a deep impact on domestic monetary policy. It deals with the most mobile production factor – capital.

With the full liberalization of all BOP accounts every country creates sufficient conditions to be included in the global financial system. Due to capital nature (that is seeking the highest risk-weighted rate of return and gathering in large quantities to benefit from the economies of scale) financial integration facilitates growth and development of the world economy. This goal is achieved via equalizing the marginal productivity of capital and the optimal allocation of this resource follows across sectors and countries. One should note that this free flow of capital induces mechanisms resulting in reallocation of other production factors. This is the channel of financial integration impact on the real sector in the national economy. The core issue studied in this paper are the consequences of financial integration for autonomous monetary policy.

When residents of the national economy have access to a broad selection of financial instruments it becomes more difficult to achieve goals of the national central bank. In such a setting, controlling nominal variables requires additional instruments and some of the standard tools are less effective. In particular, diversification and low-cost substitution of financial assets worldwide results in a drop of efficiency with most of monetary policy channels. Loss of effectiveness is not a problem in a such highly integrated global economy, as long as growth and general economic activity develop according to similar paths. In such conditions in the long run the real interest rate differentials should decrease for assets denominated in different currencies. This results in a very similar monetary policy stance, because otherwise the policy itself would be inducing monetary shocks leading to capital flows. Therefore, as long as business cycle phases are similar in highly financially integrated economies, monetary policy should also be very similar in its stance. Only an asymmetric shock justifies a divergence in this matter.

The aim of this paper is to show how monetary policy stance converge in two developed countries: Japan and the USA. Both economies are highly financially integrated.

The period covered by the empirical study is 1990-2006. With a new method to capture monetary policy restrictiveness it is possible to present systematic convergence with two periods associated with asymmetric shocks and autonomous response by national central banks. Despite of high financial integration, the fact of having the free float regime, allows for avoiding consequences of the impossible trinity. When temporary asymmetric shocks cease to exist, the system is back in line with highly converged monetary policy stance in both countries. This should be interpreted as a consequence of financial integration.

Section I presents briefly methods for capturing monetary policy stance. Section II is a presentation of a new method based on an alternative interpretation of short-term shocks observed in money velocity. Empirical part in section III covers Japan and the USA over 17 year period (1990-2006). Initial high similarity is reversed first by the Asian crises and then by 11/9 event. The whole system returns to the long-term stance after 8-10 quarters. The last part (IV) concludes.

2. Methods for Capturing Monetary Policy Restrictiveness

Both, economists and policymakers, demand credible and up to date information about restrictiveness of monetary policy. To meet this demand many researchers focused on a variety of factors that can be used as proxies of monetary policy stance. Most of methods offered so far were very case-specific and adjusted for a particular country. This is because the way of defining monetary policy, operational instruments used as well as characteristics of financial markets were the main inputs and factors shaping the final results. Some of the methods were based on macroeconomic models used for estimations of some unobservable variables and therefore highly assumptions-sensitive.

According to Bernanke and Mihov (1998), the first methods of capturing monetary policy stance were based on rates of change of money aggregates. This is however methodologically incorrect approach since the actual restrictiveness developments depend on interaction between money demand and money supply. When restricting, in measuring restrictiveness, to only one of these two categories one gets an improper image of monetary policy.

Another approach to measuring monetary policy was introduced by Friedman and Schwartz (1964) and developed by Romer and Romer (1989) and Boschen and Mills (1991). This method is based on qualitative indicators derived from official documents of a decision-

making body (a central bank or a committee). The main disadvantage here is high subjectivity, when researchers read and interpret intentions of the monetary authority. Another problem is with its qualitative nature that allows only for timing of recognized changes, but strength of them is impossible to capture. Shapiro (1994) offers another disadvantage in the form of inability to divide all considered factors into categories of dependent and independent from monetary policy. Boschen and Mills (1991) when trying to address the problem of the lack of quantitative information, added 5-tier scale for classification of monetary authority decisions. A derivative approach was developed in Poland by the ING Bank. Public opinions of all Monetary Policy Council members at the National Bank of Poland are gathered and recognized in two categories : “doves” and “hawks” (ING 2006). On this basis, analysts predict future developments in monetary policy stance. In comparison to methods presented so far, this one is solely prospective, while analysis of money aggregates rates of change and documents of monetary authorities are retrospective in nature.

There are other methods used in assessing restrictiveness, which offer quantitative information about monetary policy developments. This group of methods utilizes synthetic indexes based on qualitative and quantitative information. Great popularity of these methods has been observed since the last decade of the XXth century. One can mention here methodologies created by Bernanke (1990) and then developed in Bernanke and Blinder (1992) and Bernanke and Mihov (1995). There were several attempts to implement the methodology presented by Bernanke and Mihov (1995) despite the index seemed to be highly associated with the USA monetary policy setting (Bovin 1999, De Arcangelis and di Giorgio 1998, Kokoszczynski and Wróbel 2005, Cuche 2000). Some other similar approaches are offered by Christiano and Eichenbaum (1992) and Strongin (1992).

One can notice that VAR models earned wide recognition and acceptance in studying real sector responses to monetary policy. Sims (1998) claims that they were offering credible results. However these were still based on time series of indicators that were controversial. Rudebush (1998) questioned some proofs of real sector responses to monetary policy in VAR models. He pointed out some formal and theoretical flows. This undermined the methods developed so far and triggered new research on monetary policy restrictiveness indicator. But this invigoration took place in the time when many central banks moved to inflation targeting which called for some new instruments. In order to conduct an effective monetary policy under the new system, central banks demanded a method that would allow them to capture impact on price level of the instruments used. Then, it was the central bank of Canada that

offered Monetary Condition Index (MCI) which presents information about restrictiveness in a form of a single number (Freedman 1994). This is another index approach, composed of the weighted sum of the short-term changes of interest rates and exchange rate. There were many empirical studies based on MCI method. Korhonen (2000) and Kot (2003a, 2003b) used this indicator for measuring monetary policy of transition economies in Central Europe. However, it was already in 1996 when Eika, Ericsson and Nymoen recognized significant weaknesses of the MCI methodology.

The Taylor rule (Taylor 1993) can also be used for measuring monetary policy restrictiveness. Despite one gets results close to optimal monetary policy (Woodford 2003), it is much better suited for forecasting monetary policy or closing neo-keynesian models (Reynard 2007). Credibility of any application of the Taylor rule is undermined by the main assumption that is not met in the real life, that variability of inflation is constant. In addition one can easily prove autoregression in CPI time series which additionally undermines assumption about constant steady-state inflation.

There is another way to approach monetary policy assessment that is free of the abovementioned disadvantages of the variety of methods. It is based on an alternative interpretation of short-term shocks of money velocity. Theory behind this methodology is derived form the Fisher's equation or from microeconomic foundations of money demand. Bringing together information about money demand and supply developments was a suggested direction of research for many years. Many authors stressed the need to include information about money in measuring and defining and conducting monetary policy (Christiano, Motto and Rostagno 2007, Leeper and Roush 2003, Mulligan and Sala – I – Martin 1997, IMF 2008).

3. Money Velocity Shocks as a Monetary Policy Stance Indicator

The groundbreaking paper by Reynard (2007) claims that short-term money velocity shocks are an immanent element of the monetary transmission process. It is therefore possible to offer an alternative interpretation for those observed short-term shocks. When money velocity increases, this means that the money supply shrinks in relation to demand for money. One should interpret it as a move toward a more restrictive policy stance. If money velocity is stable in the short run, this is a neutral policy stance. In contrast, a drop in money velocity indicates expansionary monetary policy stance. This interpretation is applicable only in the

short run and is based on a stylized fact about behavior of the real sector. Changes in the number of transactions in the national economy are relatively small and are equal to the real GDP changes. With the sharp change in the number of transactions (temporary supply shock), adjustments of prices allow in some extent to conduct additional transactions with the same nominal money supply. Real money supply increases temporarily to service additional transactions. This way supply shock is buffered to some extent and the nominal GDP does not reflect the whole change in the number of transactions since their value is temporarily decreased. The alternative interpretation of money velocity shocks that is the core idea behind the new method is based on an assumption that in the long run money velocity is constant. Demand for nominal cash balances is constant. Therefore, the observed short-term shocks to velocity should be attributed to intentional (or not) monetary policy since prices are not flexible enough to fully adjust and remove entire shock impact on nominal GDP.

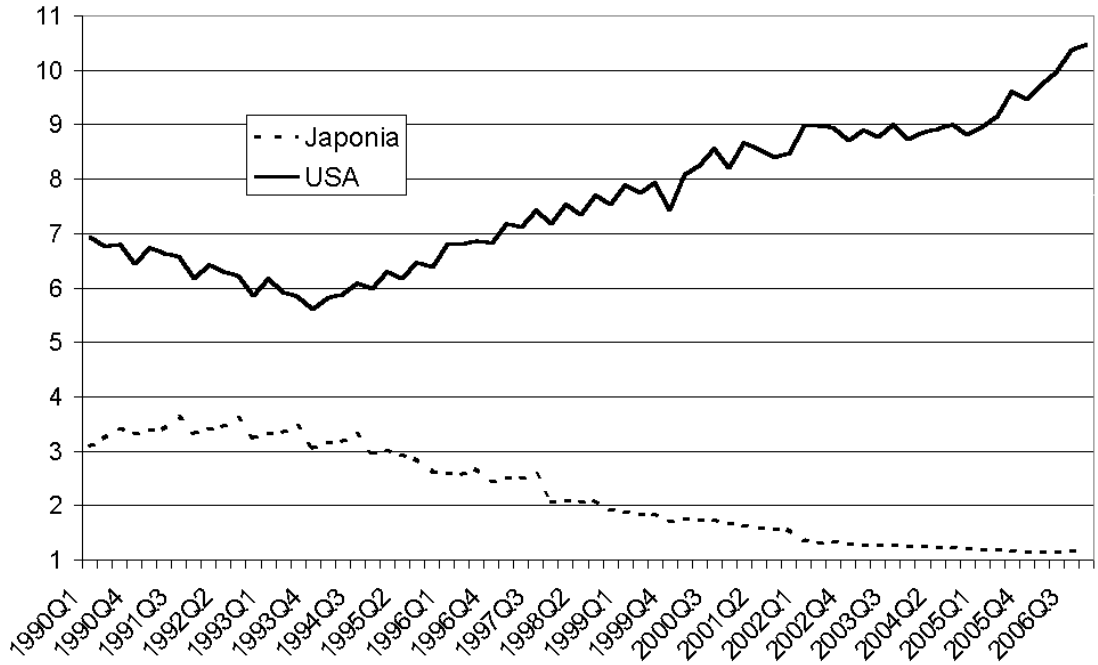
In order to receive qualitative and quantitative information about monetary policy stance developments it is convenient to calculate first differences of money velocity and present them as rates of percentage change. This way Monetary Policy Stance Index (MPSI) is created. The advantages of this approach are numerous and cover simplicity, intuitive interpretation, lack of modeling or dependence on country-specific characteristics. Neutral monetary policy is recognized when MPSI realizations are equal zero. Positive MPSI numbers indicate higher restrictiveness and negative indicate expansionary monetary policy. Among many potential applications of the MPSI one should recognize testing monetary authority effectiveness, international comparative studies, analyzing economic agents response to monetary policy. In this paper the MPSI will be used for analyzing monetary developments in two highly financially integrated economies.

4. Monetary Policy Stance Convergence in Japan and the US.

Since the II World War economies of Japan and the USA are interrelated. For many years however financial markets in Japan were closed for foreign investors, which was especially long-lasting for treasury securities. This policy can be interpreted with information about high level of public debt. Some restrictions that applied for foreign investors resulted from the aim to avoid any potential problems associated with sudden stops and withdrawing capital invested in government securities. Such a scenario was present in many cases of recent financial crises. Its detrimental impact on national economy is though the pressures on interest

rates and this way on domestic absorption. In contrast to Japan, all financial markets in the USA are for many decades an inherent element of the global financial system. Full liberalization of all BOP accounts resulted in accumulation of foreign liabilities of the USA residents. This allowed in turn for the strong dollar policy and the weak yen policy when financial surpluses of Japanese agents were invested in securities denominated in USD. The benefit achieved this way was maintaining competitiveness of Japanese products in the USA. Strong trade links and financial activity resulted in a high level of economic integration of both countries. According to the theory of economics, convergence of business cycles that followed, led to similar monetary policy stance. Despite significant differences in production structures, the way monetary policy was conducted, private sector agents behavior and quite different business culture, Japan and the USA conduct basically the same monetary policy since 1995. The listed differences are responsible for the divergent money velocity paths (Figure 1).

Figure-1: Money Velocity in Japan and the USA Quarterly 1990-2006.

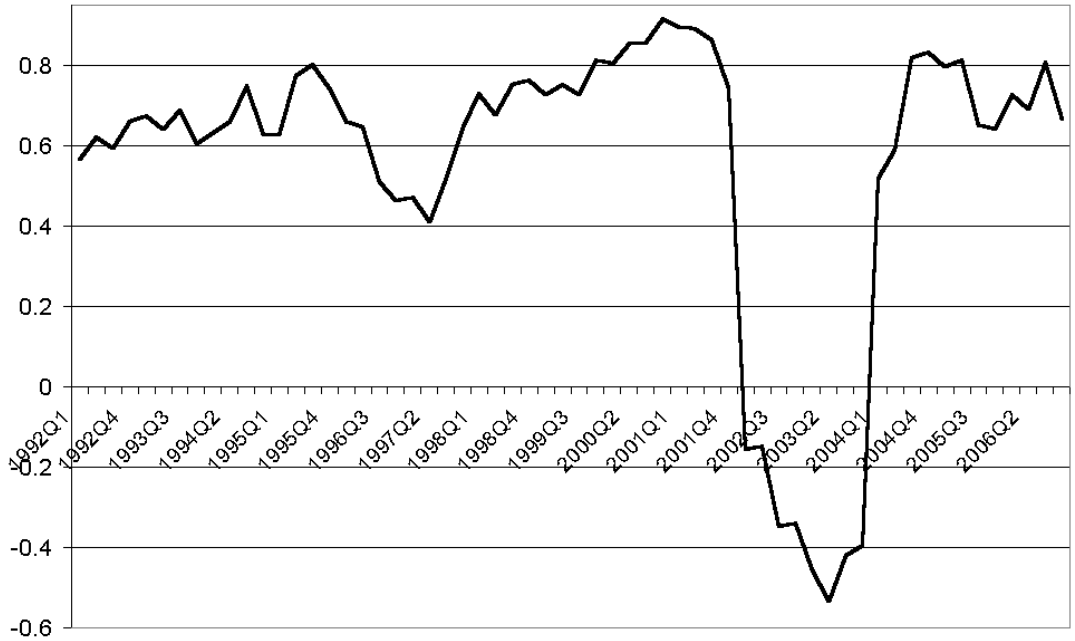


Source: Author on the basis of the International Financial Statistics, IMF, Washington 2008.

Money velocity is steadily increasing since 1994. This can be interpreted as a change in the available financial services which allow the society to hold lower cash balances. The opposite trend in Japan can be associated with the economic problems at the turn of the millennia and inefficient policy of low interest rates. The observed trend indicates moving to more expansionary monetary policy in comparison with the beginning of 90-s. Initial

convergence in money velocity reversed in 1993. Despite the different level of money velocity and behavior in cash management, the high financial integration resulted in a very similar monetary policy, when restrictiveness and its changes are considered. Graphical presentation of the MPSI for Japan and the USA is not informative. Therefore to recognize the relationship and test for the hypothesis about convergence in monetary policy stance of the central bank of Japan and FED, correlation coefficient for MPSI was calculated. It was calculated for a 4-quarter moving window and this way a new time series was obtained for 1st quarter 1994 – 4th quarter 2006 (Figure 2).

Figure 2. Correlation Coefficient for the MPSI in Japan and the USA (4-quarter moving window).



Source : Author.

For the first time correlation reached +1 at the end of 1994. After this convergence one can observe a significant divergence initiated by Mexican crises in 1995 and Asian crises in 1997. Strong and advanced integration of Japan and the USA resulted in achieving again high positive correlation in monetary policy stance. A strong asymmetric shock that affected the USA on 11/09 called for an independent response and resulted in moving close to quite opposite monetary policy stance developments for several quarters. Then again in 2003 the whole system returned to the high convergence observed as correlation coefficient close to +1 for the rest of the period covered.

5. Conclusion

Economic integration processes lead to regional cooperation of independent countries, which give up some of their autonomy in exchange for some expected benefits from removing intra-regional barriers for trade in goods, services, flow of labor and capital. The last stage of such an economic integration is creation of a full-fledged monetary union. Then the member states give up autonomy in conducting domestic monetary policy. The theory of economics point out that there are some potential costs, since national authorities loose an instrument of dealing with asymmetric shocks. According to the impossible trinity, when two out of three features are met, then the third is achieved automatically. In the studied case of Japan and the USA, the free flow of capital meaning full integration of financial markets, led to the significant convergence of the monetary policy stance. However, due to free float of yen and USD, each of these two countries can conduct an independent monetary policy, when needed. As the observed behavior in the middle of 90s. and after 9/11 terrorist attacks shows that asymmetric shocks are not only a theoretical concept. It proves also that potential costs of inability to react to them can be significant.

In the highly financially integrated world, convergence in monetary policy stance seems a natural consequence. Even a strong asymmetric shock is able to move the system away form the balance only in the short run. In the long run, the system rebalances and returns to the previous stance. As can be concluded, maintaining independence by Japan and the USA in monetary policy is of high value. This is in addition consistent with the classical OCA theory claiming a negative relationship between macroeconomic losses and ability to counteract asymmetric shocks. Member states of a monetary union do not have such an option. The only way to deal with them is with fiscal policy instruments. However, in this policy member states are most often restricted by convergence criteria and multilateral surveillance system.

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