Central Asian Countries within Financial Trilemma Theory

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Central Asian Countries within Financial Trilemma Theory

Jasur Karshibaev†

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1 . Introduction

"Financial trilemma" puts restrictions on choice of macroeconomic tools for state authorities, therefore, selected set of tools signposts to countries' development models. Consequently, defining countries' positions in financial trilemma is crucial to understand development strategies, whilst in dynamics it displays how countries respond to macroeconomic shocks and challenges.

As a part of financial trilemma, internationalization of capital flows played key role in the development of international monetary system. However, despite financial globalization, there is no optimal capital mobility level matching all countries. To benefit from free capital flows, every country is to liberalize its financial system according to institutional and financial development.[1)] Even Western European countries had to impose large-scale capital restriction after World War II to channel credit towards strategic sectors[2)] with further financial deregulations. Currently, many countries have some forms of capital restrictions. However, owing to compelling benefits, international financial liberalization is considered largely inevitable and irreversible.[3)]

Central Asian countries used to be a part of isolated economic system of former USSR. In

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1) IMF (2012), "*The Liberalization and Management of Capital Flows: An Institutional View*", Washington, DC: International Monetary Fund.

2) Eichengreen, Barry (1996), *"Globalizing Capital: A History of the International Monetary System"*, Princeton, New Jersey: Princeton University Press.

3) Eichengreen, Barry (1999), *"Towards a New International Financial Architecture: A Practical Post-Asia Agenda"*, Washington, DC: Institute for International Economics.

1991 transition from planned to market economy started in this region.[4] During transition, countries suffered from severe recession period and negative trade balances. Countries vary significantly on economic development model and financial flows regulation.[5] Currently they are in different stages of financial deregulation: Kyrgyzstan and Kazakhstan have more liberalized financial system, while Tajikistan, Turkmenistan and Uzbekistan practice some forms of capital flows boundaries on larger number of transactions.[6]

Increasing capital mobility faces countries to choice problem between monetary autonomy and fixed exchange regime. Exploring monetary policies and exchange arrangements in Central Asian countries, constructed paths are to uncover the choice of these economies within trilemma constrains.

In consideration of recent findings in financial liberalization, the paper explores capital regulations, exchange arrangements and monetary frameworks in Central Asian countries with the aim to construct countries' paths in financial trilemma.

2 . Area Profile

Central Asian region covers five countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The region is rich in mineral resources and believed to have considerable development perspectives. These countries have common past of experiencing planned economy in the USSR and enduring its further political and economic collapse, but vary in path of carried out economic reforms since independence in 1991.

In starting point, Central Asian transition countries varied significantly on economic structure, geographical location, demographical situation and available resources. The country-specific factors also reasoned governments to select paths, that differed in pace and manner of conducting reforms. Uzbekistan adopted gradual (step by step) transition from planned to market economy providing social protection to the population under leading role of government. The liberalization processes were to be carried out along with development of related legislation and readiness of population. This specific way of gradual transition was called as "Uzbek model".[7] While Kazakhstan and Kyrgyzstan were among the countries that carried out transition processes in more rapid pace of changes actively attracting foreign investors into most privatization

4) Central Asian region covers five countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

5) Karshibaev, Jasur (2014), "FDI and Export Diversification in Central Asian Economies", forthcoming in *Gulistan State University Bulletin*, Gulistan State University.

6) Karshibaev, Jasur (2014), "Recent Developments in Capital Liberalization in Central Asia", forthcoming in *The Annual Report of Economic Science*, Kyushu Association of Economic Science.

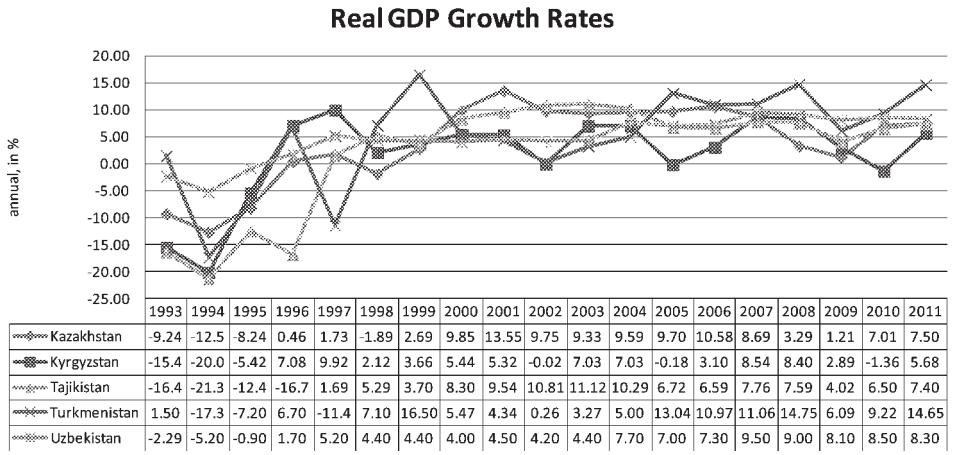
7) Каримов И.А., "Узбекистон : ижтимоий-иктисодий ривожланитиришнинг асосий тамойиллари" (Uzbekistan: Basic Principles of Socio-Economic Development), Тошкент: Узбекистон, 1995.

Table 1 Basic facts.

Country	Population (Mln. people, 2010)	Territory (Thousand km², 2010)	GDP (PPP, Bln. USD, 2010)	GDP per capita (PPP, USD, 2010)
Kazakhstan	15,8	2 715,9	196,4	12602,9
Kyrgyzstan	5,6	199,9	12,0	2248,5
Tajikistan	7,1	143,1	14,7	1935,2
Turkmenistan	5,2	488,1	36,9	6784,9
Uzbekistan	27,8	447, 4	85,8	3039,2
In total	61,5	3 547,00	345,9	

Source: UNPF (2010), *"State of World Population 2010"*, http://www.unfpa.org/,
IMF (2011), "*World Economic Outlook",* Washington, DC: International Monetary Fund.

Graph 1 Real GDP growth rates.



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kazakhstan	-9.24	-12.5	-8.24	0.46	1.73	-1.89	2.69	9.85	13.55	9.75	9.33	9.59	9.70	10.58	8.69	3.29	1.21	7.01	7.50
Kyrgyzstan	-15.4	-20.0	-5.42	7.08	9.92	2.12	3.66	5.44	5.32	-0.02	7.03	7.03	-0.18	3.10	8.54	8.40	2.89	-1.36	5.68
Tajikistan	-16.4	-21.3	-12.4	-16.7	1.69	5.29	3.70	8.30	9.54	10.81	11.12	10.29	6.72	6.59	7.76	7.59	4.02	6.50	7.40
Turkmenistan	1.50	-17.3	-7.20	6.70	-11.4	7.10	16.50	5.47	4.34	0.26	3.27	5.00	13.04	10.97	11.06	14.75	6.09	9.22	14.65
Uzbekistan	-2.29	-5.20	-0.90	1.70	5.20	4.40	4.40	4.00	4.50	4.20	4.40	7.70	7.00	7.30	9.50	9.00	8.10	8.50	8.30

Source: *UNCTAD statistics online statistical database*, http://unctadstat.unctad.org/.

processes, Turkmenistan demonstrated moderate approach to economic reforms.[8)]

The countries underwent significant economic recession in early stages of transition and recovered afterwards. As to structural changes, GDP breakdown[9)] shows that agricultural sector's share decreased in Kazakhstan, Kyrgyzstan and Uzbekistan, while it remained unchanged or increased in Tajikistan and Turkmenistan. In all Central Asian countries except Kazakhstan, Agriculture remains being significant sector of the economy with considerable share in GDP structure. Dynamics of changes in the Industrial sector varied country by country. While in Kyrgyzstan, Tajikistan, Turkmenistan its share decreased significantly, it recovered in Kazakh-

8) The World Bank (1996), *"WDR 1996: From Plan to Market"*, Oxford University Press.
9) Appendix 1.

stan and Uzbekistan. International trade is significant sector for all observed countries, especially in Kyrgyzstan, where its share kept increasing in observed period. In early 1990s negative trade balance was observed in all countries, however, afterwards trade balance of Kazakhstan, Turkmenistan and Uzbekistan turned to positive, while in Kyrgyzstan and Tajikistan the negative trade balance continued to grow.

3 . Literature Review

Restrictions by fundamental financial trilemma gave rise to addressing capital mobility as a cornerstone in designing macroeconomic policy for any country. Mundell (1963) implies that under perfect capital mobility monetary policy has no impact on employment under fixed exchange regime, while fiscal policy is of little help under flexible exchange rates.[10] The trade-off exists between achieving exchange rate stability, monetary independence, and capital account openness simultaneously.

Underpinning constrains imposed by trilemma as a cornerstone in the development of international monetary system, Eichengreen (1996) relates its development with the increasing mobility of the capital. He directly conditioned the development of international monetary system with the development of international capital markets. And transition from fixed exchange regimes towards floating regime is considered mainly relating to political necessity, and level of capital mobility in the global economy.[11] Obstfeld, Shambaugh and Taylor (2004) studied the coherence of international interest rates over more than 130 years. They found that the constrains implied by the Trilemma are widely supported by historical data. Aizenman, Chinn and Ito (2008) developed new metrics for measuring the degree of exchange rate flexibility, monetary independence, and capital account openness, taking into account changes in international reserves sizes for most countries since post Bretton Woods system period. The indexes for wide range of countries supported the presence of trade-off between components of trilemma. However, Williamson (2001) states that under BBC regime some level of monetary autonomy is available.

Aizenman, Chinn and Ito (2008) introduced new capital mobility index, which states significant financial controls in Central Asian region. However, applied methodology does not reflect the intensity of controls; consequently, the index cannot display dynamics in case of gradual financial liberalization. Karshibaev (2014)[a] found that there is a gradual financial liberalization in capital regulations in Kazakhstan and Uzbekistan, which differs in path and speed but generally matches

10) Mundell, Robert (1963), "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates", *The Canadian Journal of Economics and Political Science*, Vol.29 (4), pp. 475-485.
11) Eichengreen, Barry (1996), *"Globalizing Capital: A History of the International Monetary System"*, Princeton, New Jersey: Princeton University Press.

IMF's "Integrated approach". Furthermore, FDI sectoral distribution and export concentration indices point to significant export diversification in Uzbekistan unlike other countries in the region(Karshibaev (2014)[b]).

4. Capital Mobility

Capital mobility indices vary from each other significantly because of difference in objects of measuring, calculation methodologies and unlike components (Table 2). Mostly, indices are categorized into de facto (measuring actual financial flows) and de jure (evaluating legal regulations on capital transactions). Being based on actual financial flows de facto measures display more precisely the mobility of capital and comprise the significance of capital flows for the economies; whilst de jure indices reflects legal restrictions comprising authorities' intentions and opportunities for investments.

In majority of academic papers devoted to financial trilemma, de jure capital indices prevail due to data availability for large number of countries. Commonly used de jure capital measures indicate to significant capital restrictions and no liberalization processes in Central Asian countries, except Kyrgyzstan. However, the study of national legislations indicates to gradual financial liberalization in Kazakhstan and Uzbekistan, which differs in pace, but mostly matches IMF'S "Integrated Approach". The indices cannot reflect these changes due to applied calculation methodologies that based on number of applied regulations and do not take into account intensity of capital controls.[12] Therefore, in this paper the capital mobility is evaluated based on national legislation.

The study of legislation shows that laws on exchange operations in Central Asian countries mostly were adopted in early 1990s introducing amendments in following years. Table 3 contains brief insight into laws on exchange arrangements and capital regulations in Central Asian countries.

All Central Asian countries highly welcome FDI inflows widely providing preferences and tax exemptions. However, sectoral distribution of FDI signposts to differences in priorities: export concentration model based on natural resources, and industrialization (export diversification) model.[13] Specifically, export concentration model based on natural resources involves significant economic and financial liberalization and development based on available resources. Only competitive sectors (mainly based on natural resources) can survive becoming key source of

12) Karshibaev, Jasur (2014), "Recent Developments in Capital Liberalization in Central Asia", forthcoming in *The Annual Report of Economic Science*, Kyushu Association of Economic Science.
13) Karshibaev, Jasur (2014), "FDI and Export Diversification in Central Asian Economies", forthcoming in *Gulistan State University Bulletin*, Gulistan State University.

economic growth. Export concentrates on these sectors (fuel-energy sector in Kazakhstan) attracting significant financial resources to their expansion. However, other economic sectors are supposed to advance along with the development of principal sector. Export diversification model assumes gradual economic and financial liberalization, providing opportunity for protection of national manufacturers and establishing new industries. Capital controls allow to concentrate investments into prioritized sectors (automobile, light industries in Uzbekistan) and achieve industrialization and export diversification.

5 . Monetary Frameworks

Monetary autonomy is the category, which is closely related to and defined by the applied exchange rate regimes and capital mobility of the financial system. However, even under low capital mobility the authorities are to take into account exchange regulations in order to assure long-term financial stability. Monetary policy independence level is crucial particularly while undergoing shocks or financial imbalances: not infrequently, authorities are to choice between exchange rate stability and employment rate, financial sector stability and low inflation rate, etc. Therefore, monetary autonomy is to be considered as a tool, which is available or not for authorities due to implemented macroeconomic strategies.

Independence and goals of central banks established by national legislation of the country are to shed light to the priorities set by authorities (Table 4).

According to the laws on central bank in Central Asian countries, it is generally stated that the priority goal in all these economies is stability of prices and currencies. However, in short term actual monetary policy targets can differ from officially announced ones due to macroeconomic situation in particular country. Therefore, monetary frameworks within financial trilemma should be explored taking into account de facto policies in observed countries. IMF AREAER provides annual based data on monetary frameworks in IMF member countries since 2001. IMF classification of monetary policies comprises real interventions of Central banks to support exchange rates, therefore, it witnesses on actual intentions of state authorities in specific periods.

Table 5 displays monetary frameworks for Central Asian countries' central banks. Preliminary study indicates that in 2001-2007 all these countries, except Turkmenistan, applied monetary policies, which had no explicitly stated nominal anchor, but rather monitored various indicators of monetary policies. However, since 2008 most Central Asian countries shifted towards exchange rate anchor policy that is monetary policy goal was to support specific level of exchange rate and assure its stability.

Another notable aspect of the issue is that all Central Asian countries primarily set exchange rates against US dollar, which signposts that trade in these countries is based mostly on US

Table 2 Capital mobility measures.

	Name of Index	Components and Equations
De Jure Capital Measures	KAOPEN (Chinn-Ito) index	KAOPEN is constructed as the first standardized principal component of: K1: Presence of Multiple ER K2: Restrictions on Current AT Share$K_{3,t}$: Restrictions on Capital AT K4: Requirements of the Surrender of Export Proceeds Share$K_{3,t}=(k_{3,t}+k_{3,t-1}+k_{3,t-2}+k_{3,t-3}+k_{3,t-4})/5$ It is based on the binary dummy variables (until 1996) and Mody-Murshid (2005) methodology after 1997 to codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's AREAER.
	Miniane index	12 subcategories capital account transactions (AREAER) + multiple exchange rates of as an average of 0/1 dummies. No distinction between inflows and outflows. Does not cover temporary capital control programs. Limited country coverage.
	Johnson and Tamirisa index	0/1 dummy variables for various capital controls (AREAER), cross-sectional analysis for 45 countries, incl. Kyrgyzstan, Kazakhstan, Russia. The paper investigates the relationship between capital controls and balance of payments, macroeconomic management, market and institutional evolution, prudential and other (security) issues.
	Potchamanawong index	12 subcategories capital account transactions (AREAER) + multiple exchange rates of as an equally weighted average of each ranged from 0 to 1 with 0.25 intervals. The paper applies disaggregated data (0.25 interval) which is called to reflect intensity and changes.
	Quinn (1997) index	Scales from 0 to 2 for 7 indices: Agreements such as OECD, EFTA; payments for imports, invisibles, capital payments; receipts for exports, invisibles and capital.
	Glick and Hutchison (2000a, 2000b) index	AREAER – some version of dummy variables: if more than 5 controls than defined as controlled.
	Aizenman et al (2011)	Applied KAOPEN (Chinn-Ito) index normalized from 0 to 1 as a measure of capital mobility within Trilemma.
	Mody-Murshid (2005) index	0 to 4 as sum of a) openness of capital account, b) openness of current account, c) the stringency of requirements for the repatriation and/or surrender of export proceeds, d) existence of multiple exchange regimes. 1- relatively open regime, 0-otherwise. 4-high level of openness.
De Facto Capital Measures	Edison and Warnock (2001), Foreign ownership restriction index	$FOR_{i,t}=1-(MC_{i,t}^{IFCI}/MC_{i,t}^{IFCG})$, $FOR_{i,t}=1-(MC_{i,t}^{IFCI}/P_{i,t}^{IFCI})/(MC_{i,t}^{IFCG}/P_{i,t}^{IFCG})$ FOR-Foreign ownership restriction, MC – market capitalization – IFCI, IFCG indices. De facto measure correlates with Miniani and Quinn. The indices are by International Finance corporation.
	LMF, International Financial Integration index	International Financial Integration is defined as $IFIGDP_{i,t}=(FA_{it}+FL_{it})/GDP_{it}$, where FA(FL) are the stocks of external assets (liabilities). Equity based measure is $GEQGDP_{it}=(PEQA_{it}+FDIA_{it}+PEQL_{it}+FDIL_{it})/GDP_{it}$, where PEQA (L) and FDIA (L)- Stocks of Portfolio Equity and FDI assets (Liabilities). Therefore, GEQGDP is the indicator of the level of equity cross-holdings.
	Kraay (1998)	Volume measures: FDI, Portfolio Investments and other investment items (BOP) as a share of GDP.

Source: made by author.

Table 3 Capital regulations in Central Asia in 1996-2011.

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
Current account	1996-(L)Article VIII, IMF	1995-(L)Article VIII, IMF	2004-(L)Article VIII, IMF		2003-(L)Article VIII, IMF
Capital account: **FDI inflow** (L)-liberalization (R)-restriction	1996-(R) 2000-(L)$100 000 2002-2004-(R)Insurance Industry 2004-(R)Domestic banks 2005-(L)$300 000, or through domestic banks 2009-(L)$500 000, Banks	1997-(L) 2007-(R)Banks' share	2003-(R)	1996-(R)	1996-(L)
FDI outflow (L)-liberalization (R)-restriction	1996-(R) 2003-(L)OECD countries with higher ratings (R)If 50% of shares belongs to foreign owner 2005-(L)$300 000, or through domestic banks 2007-(L)$50 000, Banks 2009-(L)$100 000, Banks	1997-(L)	1996-(R)	1996-(R)	1996-(R) 2000-(R)Registration 2002-(L)Notification
Portfolio inflow (L)-liberalization (R)-restriction	1996-(R) 2000-(L)$100 000 2003-(L)Through resident broker companies 2005-(L)$300 000 or through resident banks 2009-(L)$500 000 2011-(L)Purchase by non-residents	1997-(R)Reg./Reports 2005-(R)20% of banks' share 2007-(R)10% of banks' share 2008-(L)Sale abroad (residents) (L)Money market instr.	1996-(R) 1998-(R)10% shares 2000-(R)20% of banks' share	1996-(R)	1996-(R) 2008-(L)Purchase by non-residents
Portfolio outflow (L)-liberalization (R)-restriction	1996-(R) 2003-(L)Through resident broker companies 2005-(L)Banks, Insurance, Pension funds 2007-(L)$50 000 2009-(L)$100 000	 2000-(L)Purchase abroad 2008-(L)Money market instr. 2009-(R)Insurance/Invest.funds	1996-(R) 1998-(L)Money market instr. 2003-(R)Buying from non-residents. 2006-(R)Money market instr.	1996-(R)	1996-(R)

Source: IMF (1996-2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions*", Washington, DC: International Monetary Fund.

Table 4 Central banks' main goals according to national legislation.

Country	Main Goals
Kazakhstan	Article 7. The primary goal of the National Bank of the Republic of Kazakhstan is assuring price stability in the Republic of Kazakhstan. Article 22. National Bank of Kazakhstan coordinates its activity with the Government of the Republic of Kazakhstan. <...> National Bank of Kazakhstan takes into consideration in its activities and facilitates implementation of economic policy of the Government if it does not contradicts main tasks and monetary policy of National Bank of Kazakhstan.
Kyrgyzstan	Article 2. The objective of the Bank of Kyrgyzstan is achieving and maintaining price stability through appropriate monetary policy according to this law. Article 3. The primary goal that contributes to achieving the objective of the Bank of Kyrgyzstan is maintaining purchasing power of the national currency, assuring efficiency, security and reliability of banking and payment system of the republic for promotion long-term economic growth of the republic. Article 6.2. Bank of Kyrgyzstan coordinates its policy with the Government of Kyrgyzstan as far as this coordination does not contradicts its main goals and tasks.
Tajikistan	Article 5. The primary goal of the National bank of the Republic of Tajikistan is maintaining long-term domestic price stability level. Article 23.4. National Bank of Tajikistan and the Government of the Republic of Tajikistan inform each-other about prospective actions of nationwide importance, coordinate their activities, conduct consultations.
Turkmenistan	Article 5. The objectives of the Central Bank of Turkmenistan are: 1) assuring stability of manat; 2) development and strengthening of banking system of Turkmenistan. Article 41. 1. Central Bank of Turkmenistan with a view to fulfill assigned functions takes part in the development of economic policy.
Uzbekistan	Article 3. The primary goal of the Central Bank is assuring stability of national currency.

Source: "Закон Кыргызской Республики "О Национальном банке Кыргызской Республики"" (Law of the Republic of Kyrgyzstan on National Bank of Kyrgyz Republic), №59 от 29.07.1997г., Национальный банк Кыргызской Республики, http://www.nbkr.kg/,
"Закон Республики Казахстан "О Национальном банке Республики Казахстан"" (Law of the Republic of Kazakhstan on National Bank of the Republic of Kazakhstan), №2155 от 30.03.1995г., Национальный банк Республики Казахстан, http://www.nationalbank.kz/,
"Закон Республики Таджикистан "О Национальном банке Таджикистана"" (Law of the Republic of Tajikistan on National Bank of the Republic of Tajikistan), №722 от 28.06.2011г., Национальный банк Таджикистана, http://www.nbt.tj/,
"Закон Республики Туркменистан "О Центральном банке Туркменистана"" (Law of Turkmenistan on Central Bank of Turkmenistan), №167-IV от 25.03.2011г., Центральный банк Туркменистана, http://www.cbt.tm/,
"Закон Республики Узбекистан "О Центральном банке Республики Узбекистан"" (Law of the Republic of Uzbekistan on Central Bank of the Republic of Uzbekistan), №154-1 от 21.12.1995г., Центральный банк Республики Узбекистан, http:// www.cbu.uz/.

dollars. For example, according to Central bank of Uzbekistan, in Uzbekistan 95% of all international trade transactions in 2013 were carried out in USD.[14)]

Central Asian countries introduced national currencies in the middle of 1990s. In the early stages, priority tasks were to establish financial system with appropriate banking system, to develop market mechanisms, to soften transition from planned economy to market economy and to recover from the economic recession. However, along with structural reforms and further economic recovery authorities aimed to achieve and assure macroeconomic stability. Price stability and economic growth are two objectives to pursue went along with country specific economic and financial situation in these countries.

Table 5 Monetary policy frameworks in Central Asian countries.

<table>
<tr><th colspan="6">Annual monetary frameworks according to IMF calssifications</th></tr>
<tr><td>Year</td><td>Kazakhstan</td><td>Kyrgyzstan</td><td>Tajikistan</td><td>Turkmenistan</td><td>Uzbekistan</td></tr>
<tr><td>National currency</td><td>Kazakh tenge, November 1993</td><td>Kyrgyz som, May, 1993</td><td>Tajik ruble, May, 1995; Tajik somoni, November, 2000</td><td>Turkmen manat, November, 1993; Redenominated in January, 2009</td><td>Uzbek sum, July, 1994</td></tr>
<tr><td>2001</td><td rowspan="6">Other monetary framework</td><td rowspan="6">Other monetary framework</td><td rowspan="3">Other monetary framework</td><td rowspan="8">Exchange rate anchor (USD)</td><td rowspan="4">Other monetary framework</td></tr>
<tr><td>2002</td></tr>
<tr><td>2003</td></tr>
<tr><td>2004</td><td rowspan="4">Monetary aggregate target</td></tr>
<tr><td>2005</td></tr>
<tr><td>2006</td></tr>
<tr><td>2007</td><td rowspan="4">Exchange rate anchor (USD)</td></tr>
<tr><td>2008</td><td rowspan="3">Exchange rate anchor (USD)</td><td>Exchange rate anchor (USD)</td></tr>
<tr><td>2009</td><td rowspan="3">Exchange rate anchor (USD)</td><td>Monetary aggregate target</td></tr>
<tr><td>2010</td><td rowspan="2">Other monetary framework</td><td rowspan="2">Exchange rate anchor (USD)</td></tr>
<tr><td>2011</td></tr>
</table>

Source: IMF (1996-2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions*", Washington, DC: International Monetary Fund.

Monetary policy in Kazakhstan in 2000s was conducted together with significant financial liberalization.[15)] Authorities prioritized low inflation rates in 2000-2001, taking into account monetary aggregates and international reserves. However, since 2002 gradual shift towards inflation targeting was carried out, while assuring stable economic growth rates. Inflation

14) "2013 йилда пул-кредит сохасидаги вазият ва монетар сиёсатнинг 2014 йилга мулжалланган асосий йуналишлари" (State of Affairs in Financial Area in 2013 and Main Directions of Monetary Policy in 2014), Узбекистон Республикаси Марказий банки, http://www.cbu.uz/.

15) "Основные направления денежно-кредитной политики Национального банка Казахстана" (Main Directions of Monetary Policy of National Bank of Kazakhstan), 2000-2013гг., Национальный банк Республики Казахстан, http://www.nationalbank.kz/.

targeting was legally established as the priority for National Bank of Kazakhstan in 2004, that is monetary policy was to aim price stability rather than exchange rate stability. However, global financial and economic crisis in 2007 pushed authorities to make a choice between price stability and stability of financial system supporting economic growth. Chosen strategy of prioritizing financial stability determined changes in monetary policy, which mostly served to support exchange rate stability. However, monetary policy returned to inflation targeting strategy in the following years through assuring exchange rate stability and strict monetary policy.

Monetary policy in Kyrgyzstan is mainly determined by the macroeconomic indices such as international reserves level and inflation level, however, authorities prioritize price stability as a source of stable economic growth in middle term. In early stages of global financial imbalances in 2007, authorities introduced pegged exchange arrangement, which predetermined exchange rate anchor strategy to support exchange rate stability in following 2 years with further returning to initial monetary policy driven by macroeconomic indicators.

Similar strategy of applied monetary policy can be observed in Tajikistan. Authorities mostly monitor various macroeconomic indicator in developing monetary frameworks. Priorities in monetary policy is currency stability and de-dollarization of national economy.[16] During the global financial and economic crisis, Tajikistan applied strict monetary policy with a view to assure exchange rate stability.

Monetary frameworks in Turkmenistan underwent little change according to IMF classification. Applied exchange rate anchor strategy aimed supporting conventional pegged exchange rate regime introduced in the middle of 1990s.

Supporting economic growth through export stimulation policy, price and currency stability are set as a primary goals of conducted monetary policy in Uzbekistan in 2000s.[17] According to IMF classification, in the first half of 2000s these goals were pursued through strategies of developing monetary frameworks based on monitoring macroeconomic indices. However, global financial and economic crisis in 2007 made authorities to conduct stricter monetary policy with the view to support applied pegged form of exchange regime.

6 . Exchange Arrangements

Exchange arrangements in Central Asian countries according to IMF AREAER de facto

16) "Прогноз основных направлений денежно-кредитной политики Республики Таджикистан" (Forecast on Main Directions of Monetary Policy of the Republic of Tajikistan), 2000-2012гг., Национальный банк Таджикистана, http://www.nbt.tj/.
17) "Пул-кредит сохасидаги вазият ва монетар сиёсатнинг асосий йуналишлари" (State of Affairs in Financial Area and Main Directions of Monetary Policy), 2006-2014 йй., Узбекистон Республикаси Марказий банки, http://www.cbu.uz/.

classification is observed since 1996 (Table 6). Preliminary observation revealed that except Turkmenistan, which introduced conventional pegged arrangement since 1998 to present, Central Asian countries mostly applied some forms of managed floating in 1996-2006. However, in 2006-2007 most of these countries tended towards more pegged form of exchange rate arrangements. Previously provided data on monetary policy frameworks generally fit to exchange arrangements, that is countries with pegged exchange arrangement as a rule applied exchange anchors.

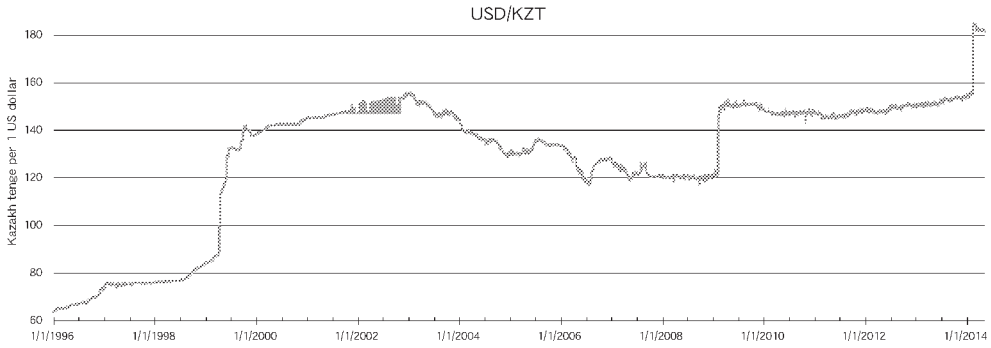
Table 6 Exchange arrangements in Central Asian countries.

<table>
<tr><th>Year</th><th>Kazakhstan</th><th>Kyrgyzstan</th><th>Tajikistan</th><th>Turkmenistan</th><th>Uzbekistan</th></tr>
<tr><td>1996</td><td>Independent floating</td><td rowspan="2">Managed floating</td><td>Independent floating</td><td rowspan="2">Managed floating</td><td rowspan="2">Managed floating</td></tr>
<tr><td>1997</td><td>Managed floating</td><td>Managed floating</td></tr>
<tr><td>1998</td><td>Managed floating with no preannounced path</td><td rowspan="8">Managed floating with no preannounced path</td><td>Managed Floating with no preannounced path</td><td rowspan="11">Conventional pegged arrangement</td><td rowspan="5">Managed floating with no preannounced path</td></tr>
<tr><td>1999</td><td>Independent floating</td><td rowspan="3">Independent floating</td></tr>
<tr><td>2000</td><td rowspan="7">Managed floating with no preannounced path</td></tr>
<tr><td>2001</td></tr>
<tr><td>2002</td><td rowspan="6">Managed Floating with no preannounced path</td></tr>
<tr><td>2003</td></tr>
<tr><td>2004</td></tr>
<tr><td>2005</td><td rowspan="2">Conventional pegged arrangement, Crawling peg</td></tr>
<tr><td>2006</td></tr>
<tr><td>2007</td><td>Conventional pegged arrangement</td><td>Conventional pegged arrangement, Managed floating with no preannounced path</td><td>Conventional pegged arrangement</td><td rowspan="5">Crawling peg</td></tr>
<tr><td>2008</td><td>Stabilized arrangement[18)]</td><td rowspan="4">Other managed arrangement[19)]</td><td>Stabilized arrangement[20)]</td></tr>
<tr><td>2009</td><td rowspan="3">Pegged exchange rate within horizontal bands, Crawl-like arrangement</td><td>Other managed arrangement</td></tr>
<tr><td>2010</td><td rowspan="2">Stabilized arrangement</td></tr>
<tr><td>2011</td></tr>
</table>

Source: IMF (1996-2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions*", Washington, DC: International Monetary Fund.

18) Due to methodological changes, Conventional pegged arrangement regime was reclassified to Stabilized arrangement regime.
19) Due to methodological changes, Managed floating with no preannounced path regime was reclassified to Other managed arrangement.
20) Due to methodological changes, Conventional pegged arrangement regime was reclassified to Stabilized arrangement regime.

Graph 2 Nominal exchange rates of Kazakh tenge against US dollar.



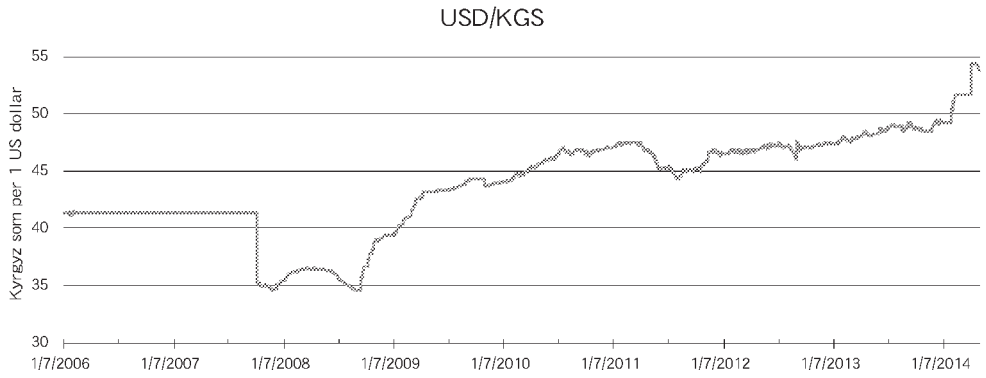
Source: *OANDA online currency database*, http://www.oanda.com/.

Detailed study of exchange arrangements in conjunction with nominal exchange rates is to shed light on volatility of actual exchange rates under applied exchange regimes.

Exchange regulations in Kazakhstan is driven by internal and international economic circumstances. As a rule, exchange rate regime in Kazakhstan aims to stabilize price level. However, during Asian financial crises in 1998, exchange rate of national currency underwent significant pressure, which led to decrease in international reserves (Graph 7). With the aim to stabilize financial sector and improve trade competitiveness, independent floating regime was introduced. This change led to significant depreciation of national currency in 1999 (Graph 2). At new rate, managed exchange rate regime was reintroduced with the view to depreciate exchange rate according to inflation rate. Relatively flexible exchange regime and significant capital inflows allowed authorities to increase international reserves and appreciated exchange rate of Kazakh tenge in following years. Despite positive trade balance on current account transactions, significant increase in government expenditures in the middle of 2005 increased inflationary pressure and corresponding policy by National bank to support exchange rate led to decrease in international reserves. Global financial crises in 2007 made authorities change priorities to assure financial stability through introducing pegged exchange arrangements. Interventions by National bank to support exchange rate decreased international reserves in 2007, however, it recovered afterwards. In order to assure stability of pegged exchange rate as a priority during global imbalances, in 2009 exchange rate of the national currency was significantly depreciated. In 2011, along with inflation targeting monetary policy managed floating exchange arrangement was reintroduced officially.[21)]

21) "Основные направления денежно-кредитной политики Национального банка Казахстана" (Main Directions of Monetary Policy of National Bank of Kazakhstan), 2000-2013гг., Национальный банк Республики Казахстан, http://www.nationalbank.kz/.

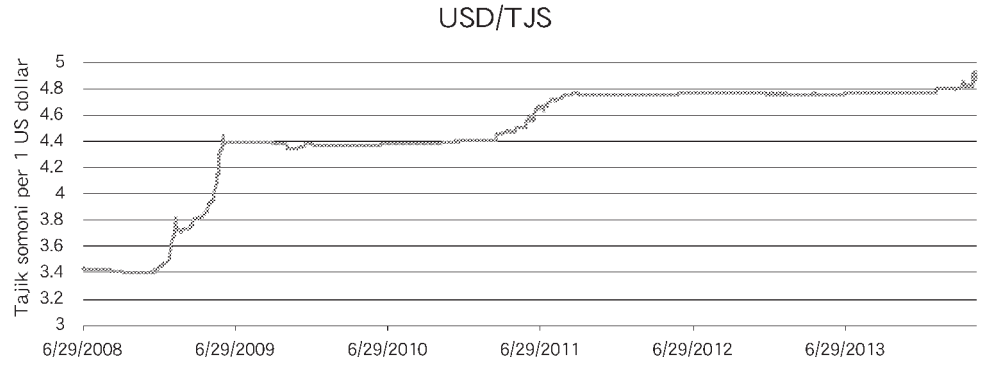
Graph 3 Nominal exchange rates of Kyrgyz som against US dollar.



Source: *OANDA online currency database*, http://www.oanda.com/.

Relatively liberalized financial system and monetary policy determined by macroeconomic circumstances in Kyrgyzstan led to applying more flexible exchange rate arrangements. However, the authorities stabilized nominal exchange rate fluctuations through interventions.

Graph 4 Nominal exchange rates of Tajik somoni against US dollar.



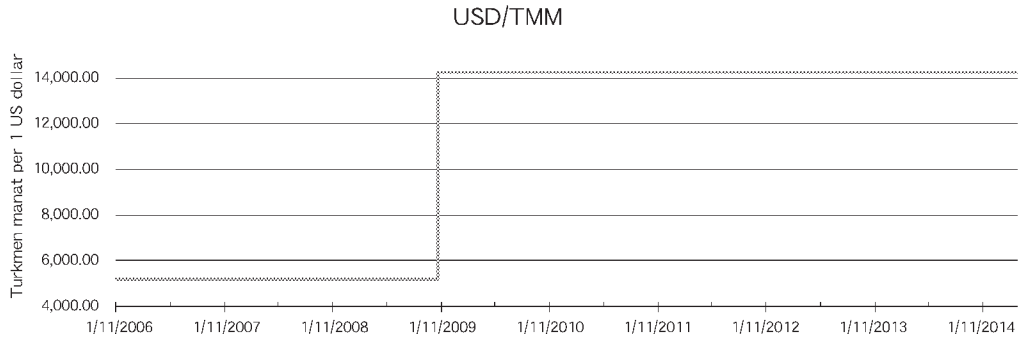
Source: *OANDA online currency database*, http://www.oanda.com/.

In Tajikistan, applied exchange arrangements mainly reflected the authorities' intentions driven by macroeconomic indicators. Financial stability, low inflation and currreny stability priorities were determined by international reserves level and based on monetary programs developed in cooperation with international financial institutions. Applied strategy let to prevent significant fluctuations while depreciating national currency according to macroeconomic circumstances.

In observed period, exchange regulations in Turkmenistan underwent little change. Applied conventional pegged regime accompanied with significant capital controls and strict monetary

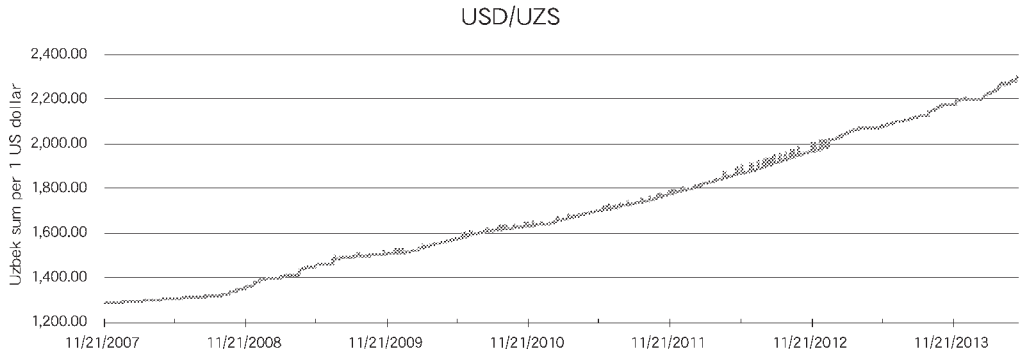
policy allowed the country significantly increase international reserves and assure financial stability. Nominal exchange rate kept stable with depreciations when required (Graph 5).

Graph 5 Nominal exchange rates of Turkmen manat against US dollar.



Source: *OANDA online currency database*, http://www.oanda.com/.

Graph 6 Nominal exchange rates of Uzbek sum against US dollar.

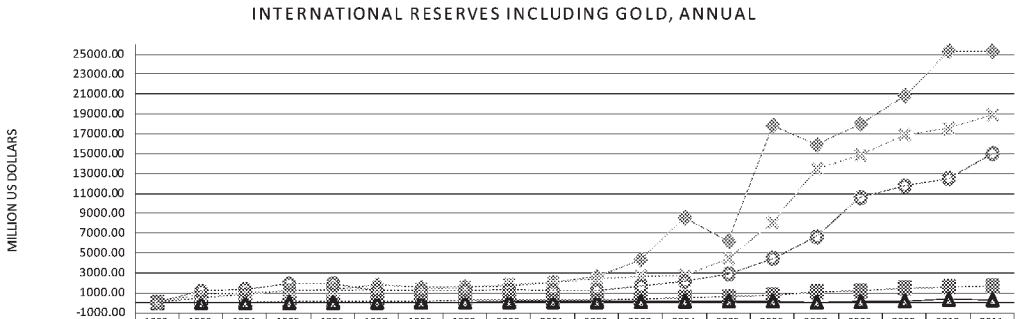


Source: *OANDA online currency database*, http://www.oanda.com/.

Exchange arrangements in Uzbekistan were determined based on priorities of export stimulation policy, low inflation, currreny stability and international reserves level through targeting macroeconomic indicators. For these purposes managed floating regime was introduced. Gradual depreciation of national currency allowed to improve competitiveness of national export, while preventing from significant fluctuations assured currency stability. However, in 2006-2007 exchange arrangements were used as a tool to decrease inflation level. Therefore, strict monetary policy was accompanied with lower degree of depreciation of Uzbek sum against US dollar. Thus, if in 2005 nominal exchange rate was depreciated to 8.4%, in 2006-2007 Uzbek sum depreciated only to 4.2 and 4.0% accordingly (Graph 6).

However, during the global financial and economic crisis the priority of export stimulation and exchange rate stability prevailed. Therefore, introduced crawling peg regime let the authorities to decpreciate gradually nominal exchange rate of national currency with larger scopes preventing fluctuations. Thus, Uzbek sum annual depreciation varied from 7.9% to 11% in 2008-2011. This strategy allowed the authorities to increase international reserves and to assure financial stability and significant economic growth rates even during crisis.[22)]

Graph 7 International reserves in Central Asian countries.



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kazakhstan	0.00	487.15	888.01	1206.06	1384.84	1782.67	1547.57	1565.57	1678.00	2078.13	2636.59	4326.68	8572.82	6180.29	17864.75	15900.48	17996.21	20844.01	25339.35	25320.75
Kyrgyzstan	46.00	0.00	0.00	88.04	100.81	174.12	167.85	233.68	242.84	267.19	292.80	368.92	532.67	573.88	768.72	1111.82	1157.35	1498.53	1608.07	1707.50
Tajikistan	0.00	0.00	0.00	0.00	0.00	36.91	53.98	55.55	93.10	92.83	89.51	112.56	159.33	170.24	177.49	43.08	107.55	178.62	327.21	297.35
Turkmenistan	0.00	818.00	927.00	1165.00	1172.00	1285.00	1379.00	1555.00	1808.00	2055.00	2346.00	2673.00	2729.40	4457.70	8059.20	13461.20	14837.70	16882.00	17540.90	18903.30
Uzbekistan	0.00	1147.92	1330.00	1867.00	1901.00	1167.00	1168.00	1241.51	1273.00	1212.00	1215.00	1659.00	2146.00	2895.00	4459.00	6614.00	10572.00	11750.00	12500.00	15000.00

Source: *UNCTAD statistics online statistical database*, http://unctadstat.unctad.org.

7 . Central Asian Countries within Financial Trilemma

Based on findings on recent capital liberalization in Central Asian economies, monetary policy frameworks and exchange arrangements, the countries position within financial trilemma is constructed.

Capital mobility, monetary autonomy and exchange rate regimes classification approach is provided in Table 7.

Capital mobility classification is based on IMF's "Integrated approach" to sequencing capital flow liberalization. "*The first stage suggests liberalizing FDI inflows, as such flows are considered to be more stable than other flows and also more likely to contribute to growth. The first stage also lays the groundwork for further liberalization by introducing international accounting standards and improving national statistics. The monetary framework and financial sector*

22) "Пул-кредит сохасидаги вазият ва монетар сиёсатнинг асосий йуналишлари" (State of Affairs in Financial Area and Main Directions of Monetary Policy), 2006-2014 йй., Узбекистон Республикаси Марказий банки, http://www.cbu.uz/.

Table 7 Classification of trilemma components.

Capital mobility liberalization ("Integrated approach", IMF)	**Exchange arrangements** ("De facto classification", IMF)	**Monetary autonomy** ("De facto classification", IMF)
Low capital mobility: Significant restrictions on most capital flows except FDI inflows.	**Hard pegs:** Currency board No separate legal tender	**Low level of monetary autonomy:** Exchange rate anchor
Intermediate capital mobility: FDI outflow and long-term portfolio flows liberalization, some short-term flows can also be liberalized at this stage.	**Soft pegs:** Conventional peg Stabilized arrangement Crawling peg Crawl-like arrangement Pegged exchange rate within horizontal bands Other managed arrangement	**Partly monetary autonomy:** Other monetary framework
High capital mobility: All remaining controls are eliminated.	**Floating:** Free floating Floating	**High level of monetary autonomy:** Monetary aggregate target, Inflation-targeting framework

Source: IMF (2011), "*Liberalizing Capital Flows and Managing Outflows*", Washington, DC: International Monetary Fund,
IMF (2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions",* Washington, DC: International Monetary Fund.

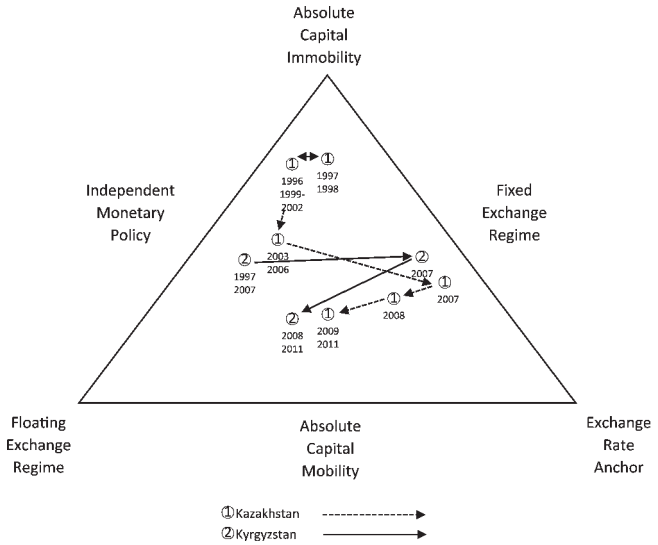
regulation also need to be strengthened at this stage. The second stage introduces FDI outflow and long-term portfolio flow liberalization. Some short-term flows can also be liberalized at this stage. The last stage eliminates all remaining controls after developing the financial markets and further strengthening the financial sector by implementing adequate prudential regulations and supervision to ensure proper risk management of international capital flows".[23)]

Exchange arrangements and monetary policy frameworks are based on IMF's "de facto classification".[24)] "*The classification system is based on the members' actual, de facto arrangements, as identified by IMF staff, which may differ from their officially announced, de jure arrangements*".[25)] Despite IMF's classification, in this classification Other managed arrangement is categorized as soft pegs. Originally, this category is a residual and is used when the exchange rate arrangement does not meet the criteria for any of the other categories or arrangements characterized by frequent shifts in policies. Monetary policy frameworks are categorized into 3 groups depending on policy objectives: exchange rate stability, inflation targeting and monetary aggregate targeting, others.

23) IMF (2011), "*Liberalizing Capital Flows and Managing Outflows*", Washington, DC: International Monetary Fund.
24) See Appendix 2.
25) IMF (1996-2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions*", Washington, DC: International Monetary Fund.

Observed data on monetary frameworks and exchange arrangements in these countries indicates to the significant link between them; that is, while countries applied some form of fixed exchange regime usually these countries applied monetary policy to support this regime (exchange rate anchor).

Figure 1 Kazakhstan and Kyrgyzstan in financial trilemma.



Source: made by author.

The paths in financial trilemma signpost to how countries searched optimal combination of capital mobility, monetary autonomy and exchange regulations. Central Asian countries vary significantly on path and pace in trilemma; however, they generally correspond to countries' model of transition to market economy and conducting structural reforms. Considering capital mobility as one of the crucial factors, which determined movements in trilemma, capital liberalization in the region indicates to dissimilar targets and strategies. Thus, capital liberalization in Kyrgyzstan (1990s) and Kazakhstan (2000s) as source of a long-term economic growth reflects increasing capital mobility in these countries. Approaching to high capital mobility side in the trilemma added additional pressure on these financial systems to choose between exchange rate stability and monetary autonomy.

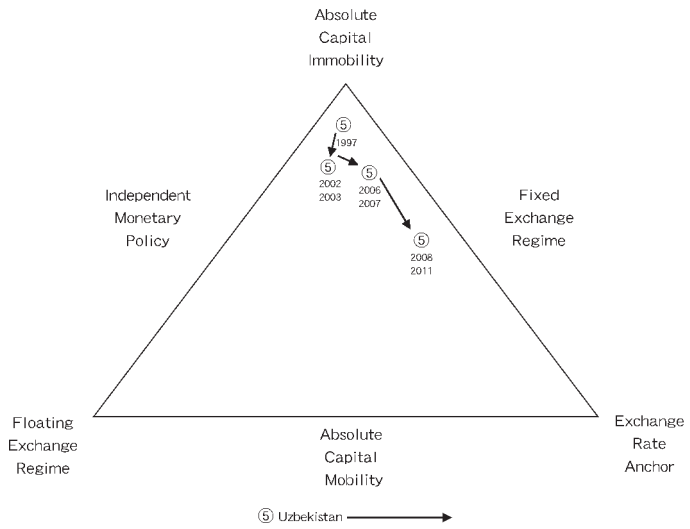
In Kazakhstan, authorities prioritized low inflation rates and monetary policy was to aim price stability rather than exchange rate stability. Therefore, in Kazakhstan along with financial liberalization monetary policy gradually shifted from monetary aggregates targeting towards inflation targeting. Thus, under higher capital mobility, ceteris paribus, the authorities in Kazakhstan tend to choose monetary autonomy to exchange rate stability with the view to

achieve low inflation. This priority explains applied managed floating regimes, however, combined with strict monetary policy it is to assure nominal exchange rate stability.

Monetary policy in Kyrgyzstan is mainly determined by the macroeconomic indices such as international reserves level and inflation level, however, authorities prioritize price stability as a source of stable economic growth in middle term. Therefore, liberalized financial system and monetary policy determined applying more flexible exchange rate arrangements. However, the authorities stabilized nominal exchange rate fluctuations through interventions.

Thus, under increasing capital mobility similar goals determined similar locations of Kazakhstan and Kyrgyzstan in financial trilemma, where monetary autonomy is prioritized. However, during global financial imbalances in 2007 both countries prioritized exchange rate stability to low inflation as a temporarily measure. This priority changes reflected in shift of countries' locations towards exchange rate anchor side in financial trilemma. However, countries returned to their initial positions afterwards.

Figure 2 Uzbekistan in financial trilemma.



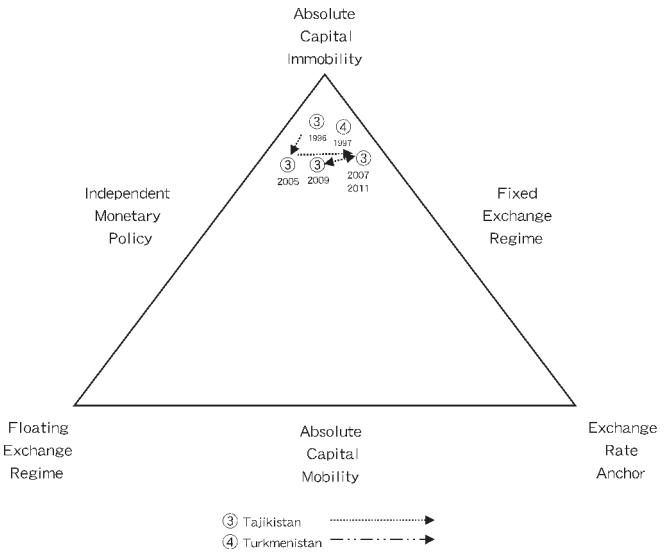
Source: made by author.

Another path and pace is revealed in Uzbekistan. According to transition model, applied capital controls and gradual financial liberalization goes along with assuring export diversification and industrialization. Under increasing capital mobility, Uzbekistan's path indicates to applied strategy of gradual depreciation of national currency's exchange rate with a view to support export development, while strict monetary policy and stable exchange rates are to ease inflationary expectations. In the trilemma, such strategy corresponds to the priority of

exchange rate stability over monetary autonomy. However, applied exchange rate regime allows achieving required level of money supply to stimulate economic growth.

The steady position of Turkmenistan in trilemma is explained with significant capital controls. Unlike other regional countries, the stable position in trilemma of Turkmenistan is being assured due to applied pegged form of exchange arrangement and corresponding monetary policy. In trilemma, this position corresponds to priority of exchange rate stability to monetary autonomy.

Figure 3 Tajikistan and Turkmenistan in financial trilemma.



Source: made by author.

Under significant capital regulations, in Tajikistan monetary policy was driven by macroeconomic indices accompanied with corresponding exchange arrangements. Priorities in monetary policy are currency stability and de-dollarization of national economy. During the global financial and economic crisis, Tajikistan applied strict monetary policy with a view to assure exchange rate stability. Applied strategy led to prevention of significant fluctuations and depreciation of national currency corresponding to macroeconomic circumstances.

8 . Conclusion

Location of countries in financial trilemma reflects how countries pursue their macroeconomic goals within those economic conditions in certain periods, while existing dynamics in choice signposts to the middle or long-term development strategies in these economies.

Study shows that despite the capital mobility level, in Central Asian countries trilemma restrictions hold in conducted monetary policy and exchange arrangements: usually pegged exchange regimes accompanied with exchange rate anchor monetary policy.

Countries positions within trilemma display different patterns. From the standpoint of capital liberalization, 3 paths are observed: countries with significant financial liberalization (Kazakhstan in 2000s, Kyrgyzstan in 1990s), gradual capital deregulation (Uzbekistan in 2000s) and significant financial flows controls (Tajikistan, Turkmenistan).

From the position of choice between monetary autonomy and exchange rate stability, again contrasting arrangements are observed. In Kazakhstan and Kyrgyzstan, the authorities prioritized low inflation. Therefore, monetary policy was directed to assure price stability; however, other macroeconomic indices also effected actual policy. In these countries generally monetary autonomy priority prevailed. On the other hand, temporary shift in the trilemma towards pegged exchange rates in 2007 indicates to the changes in priorities during global imbalances. Thus, being considered as a financial stability source in Kazakhstan and Kyrgyzstan exchange rate stability got impermanent priority over price stability during financial crisis. Following shifts display returning to inflation-targeting strategy as a long-term priority.

In Uzbekistan and Turkmenistan contrary strategy prevailed. In Uzbekistan, along with gradual increasing capital mobility, generally exchange rate stability got priority over monetary policy autonomy. The strategy of gradual depreciation of national currency's nominal exchange rate pursues long-term export development, while strict monetary policy and stable exchange rates are to assure price stability as well. Applied exchange rate regime is believed to allow achieving required level of money supply to stimulate economic growth through corresponding depreciation band.

Unlike other regional countries, the path of Turkmenistan in financial trilemma underwent little change. The stable position in trilemma was assured through substantial capital controls. Applied pegged form of exchange arrangement accompanied with strict monetary policy by means of exchange rate anchor strategy with occasional depreciations.

In Tajikistan, monetary policy was driven by internal macroeconomic indices accompanied with corresponding exchange arrangements. Currency stability was set as priority, especially, during the global financial and economic crisis. Applied strict monetary policy prevented significant fluctuations.

Countries positions and dynamics of their movements give general understanding of countries strategies and tools applied to achieve macroeconomic goals. Courses taken by Central Asian countries generally match to the development model adopted in each country. However, further in-deep study of exchange arrangements and monetary policy will shed more light on priorities of countries, country-specifics, reasons and mechanisms of applied policies.

References

-English-

Aizenman, Joshua, Chinn, Menzie D. and Hiro Ito (2011), "Surfing the Waves of Globalization: Asia and Financial Globalization in the Context of the Trilemma", *Journal of the Japanese and International Economies,* Vol.25 (3), pp. 290-320.

Ariyoshi, Akira, Karl Habermeier, Bernard Laurens, İnci Ötker-Robe, Jorge Iván Canales-Kriljenko, and Andrei Kirilenko (2000), "Capital Controls: Country Experiences with Their Use and Liberalization", *Occasional Paper 190,* Washington, DC: International Monetary Fund.

Chinn, Menzie D. and Hiro Ito (2008), "A New Measure of Financial Openness", *Journal of Comparative Policy Analysis,* Vol.10 (3), pp. 309-322.

De Grauwe, Paul (1989), "*International Money: Post-War Trends and Theories"*, Oxford: Clarendon Press.

De Grauwe, Paul (2009), "*Economics of Monetary Union - 8th Edition*", Oxford University Press.

Dooley, Michael P. (1996), "A Survey of Academic Literature on Controls over International Capital Transactions", *NBER Working Paper 5352*.

Edison, J. Hali and Francis E. Warnock (2001), "A Simple Measure of the Intensity of Capital Controls", *Working Paper WP/01/180,* Washington, DC: International Monetary Fund.

Edwards, Sebastian (2001), "Capital Mobility and Economic Performance: Are Emerging Economies Different?", *NBER Working paper 8076*.

Eichengreen, Barry (1996), "*Globalizing Capital: A History of the International Monetary System"*, Princeton, New Jersey: Princeton University Press.

Eichengreen, Barry (1999), "*Towards a New International Financial Architecture: A Practical Post-Asia Agenda"*, Washington, DC: Institute for International Economics.

Eichengreen, Barry (2001), "Capital Account Liberalization: What Do Cross-Country Studies Tell Us?", *The World Bank Economic Review*, Vol. 15 (3), pp. 341-365.

Glick, Reuven and Michael Hutchison (2002), "Capital Controls and Exchange Rate Instability in Developing Economies", *Pacific Basin Working Paper Series*, Working paper No. PB00-05.

Henry, Peter Blair (2006), "Capital Account Liberalization: Theory, Evidence, and Speculations", *NBER Working Paper 12698*.

IMF (1996-2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions*", Washington, DC: International Monetary Fund.

IMF (2011), "*Liberalizing Capital Flows and Managing Outflows*", Washington, DC: International Monetary Fund.

IMF (2012), "*The Liberalization and Management of Capital Flows: An Institutional View*", Washington, DC: International Monetary Fund.

Johnson, R. Barry and Natalia T. Tamirisa (1998), "Why Do Countries Use Capital Controls?", *Working paper WP/98/181*, Washington, DC: International Monetary Fund.

Karshibaev, Jasur (2014)[a], "Recent Developments in Capital Liberalization in Central Asia", forthcoming in *The Annual Report of Economic Science*, Kyushu Association of Economic Science.

Karshibaev, Jasur (2014)[b], "FDI and Export Diversification in Central Asian Economies", forthcoming in *Gulistan State University Bulletin*, Gulistan State University.

Kraay, Aart (1998), *"In Search of the Macroeconomic Effects of Capital Account Liberalization",* The World Bank Group.

Lane, R. Philip, and Gian Maria Milesi-Ferretti (2001), "The External Wealth of Nations: Measures of Foreign Assets and Liabilities for Industrial and Developing Countries", *Journal of International Economics,* Vol. 55 (2), pp. 263-94.

Lane, R. Philip, and Gian Maria Milesi-Ferretti (2003), "International Financial Integration", *Staff Papers*, Vol. 50

(Special Issue), Washington, DC: International Monetary Fund.

Miniane, Jacques (2004), "A New Set of Measures on Capital Account Restrictions", *Staff Papers*, Vol. 51 (2), Washington, DC: International Monetary Fund.

Mody, Ashoka and Antu Panini Murshid (2005), "Growing Up with Capital Flows", *Journal of International Economics,* Vol.65 (1), pp. 249-266.

Mundell, Robert (1963), "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates", *The Canadian Journal of Economics and Political Science*, Vol.29 (4), pp. 475-485.

OANDA online currency database, OANDA Corporation: http://www.oanda.com/.

Obstfeld, Maurice, Shambaugh, Jay C. and Alan M. Taylor (2004), "The Trilemma in History: Tradeoffs among Exchange Rates, Monetary Policies, and Capital Mobility", *NBER Working Paper 10396*.

Potchamanawong, Pariyate (2007), *"A New Measure of Capital Controls and Its Relation to Currency Crises"*, A dissertation submitted to the Faculty of Claremont Graduate University in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Graduate Faculty of Economics, Claremont, California.

Quinn, Dennis (1997), "The Correlates of Change in International Financial Regulation", *American Political Science Review,* Vol.91 (3), pp. 531-551.

The World Bank (1996), *"WDR 1996: From Plan to Market"*, Oxford University Press.

UNCTAD (2013-2014), *UNCTAD statistics online statistical database*, United Nations Conference on Trade and Development: http://unctadstat.unctad.org/.

UNPF (2010), *"State of World Population 2010"*, United Nations Population Fund: http://www.unfpa.org/.

-Russian-

"Закон Кыргызской Республики "О Национальном банке Кыргызской Республики"" (Law of the Republic of Kyrgyzstan on National Bank of Kyrgyz Republic), №59 от 29.07.1997г., Национальный банк Кыргызской Республики, http://www.nbkr.kg/.

"Закон Республики Казахстан "О Национальном банке Республики Казахстан"" (Law of the Republic of Kazakhstan on National Bank of the Republic of Kazakhstan), №2155 от 30.03.1995г., Национальный банк Республики Казахстан, http://www.nationalbank.kz/.

"Закон Республики Таджикистан "О Национальном банке Таджикистана"" (Law of the Republic of Tajikistan on National Bank of the Republic of Tajikistan), №722 от 28.06.2011г., Национальный банк Таджикистана, http://www.nbt.tj/.

"Закон Республики Туркменистан "О Центральном банке Туркменистана"" (Law of Turkmenistan on Central Bank of Turkmenistan), №167-IV от 25.03.2011г., Центральный банк Туркменистана, http://www.cbt.tm/.

"Закон Республики Узбекистан "О Центральном банке Республики Узбекистан"" (Law of the Republic of Uzbekistan on Central Bank of the Republic of Uzbekistan), №154-1 от 21.12.1995г., Центральный банк Республики Узбекистан, http://www.cbu.uz/.

"Кыргызстан в цифрах" (Kyrgyzstan in Numbers), Статистический сборник Национального статистического комитета Кыргызской Республики, 2012.

"Основные направления денежно-кредитной политики Национального банка Казахстана" (Main Directions of Monetary Policy of National Bank of Kazakhstan), 2000-2013гг., Национальный банк Республики Казахстан, http://www.nationalbank.kz/.

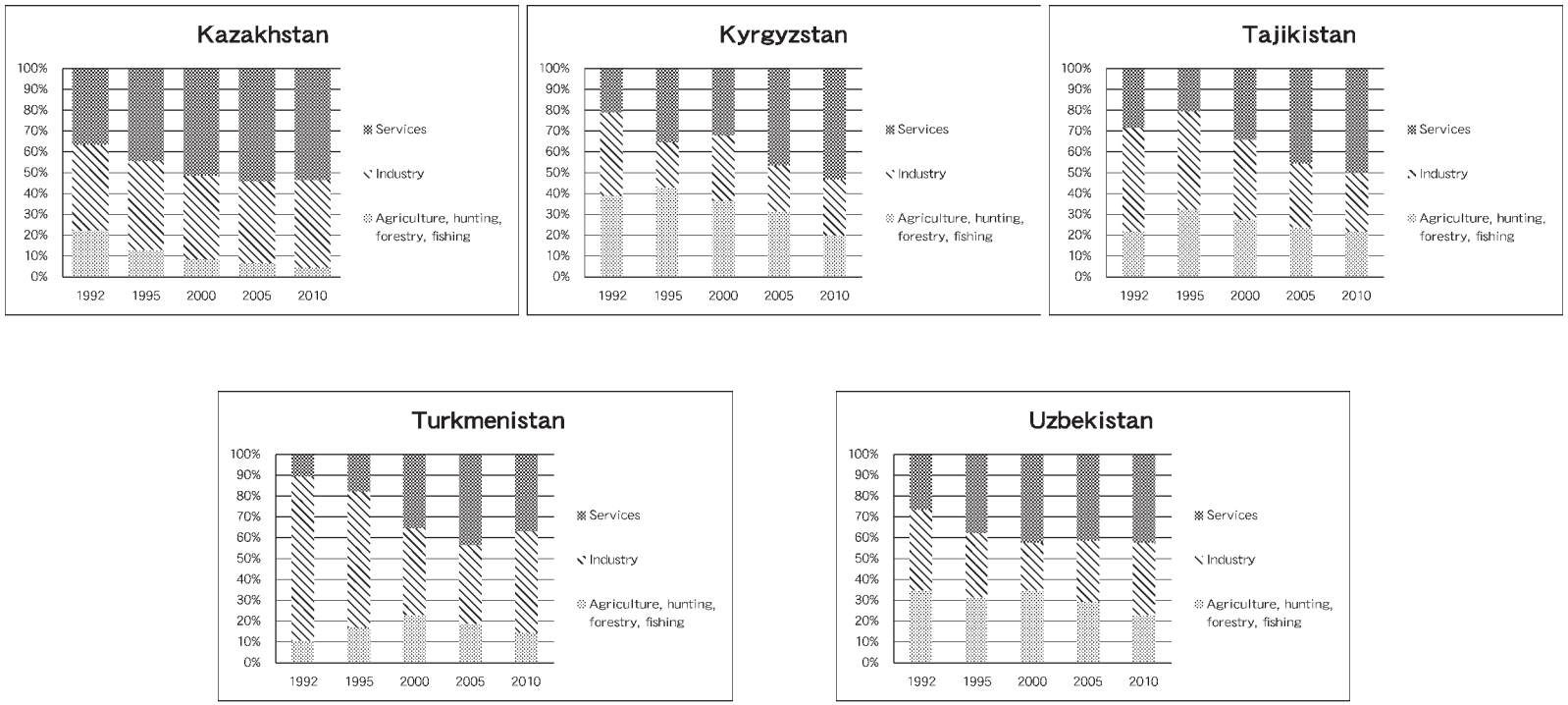
"Прогноз основных направлений денежно-кредитной политики Республики Таджикистан" (Forecast on Main Directions of Monetary Policy of the Republic of Tajikistan), 2000-2012гг., Национальный банк Таджикистана, http://www.nbt.tj/.

-Uzbek-

Каримов И.А., "Узбекистон : ижтимоий-иктисодий ривожланитиришнинг асосий тамойиллари" (Uzbekistan: Basic Principles of Socio-Economic Development), Тошкент: Узбекистон, 1995.

“Пул-кредит сохасидаги вазият ва монетар сиёсатнинг асосий йуналишлари” (State of Affairs in Financial Area and Main Directions of Monetary Policy), 2006-2014 йй., Узбекистон Республикаси Марказий банки, http://www.cbu.uz/.

GDP Breakdown by Economic Activity

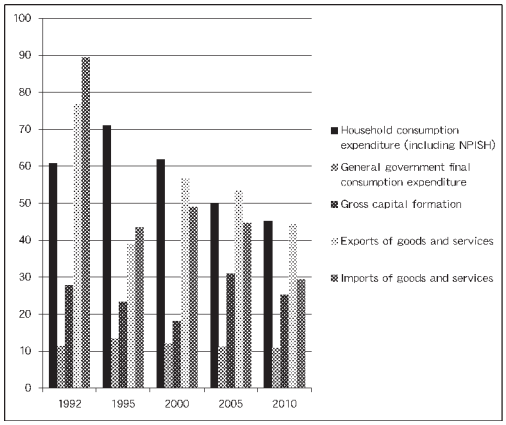


Source: *UNCTAD statistics online statistical database*, http://unctadstat.unctad.org/.

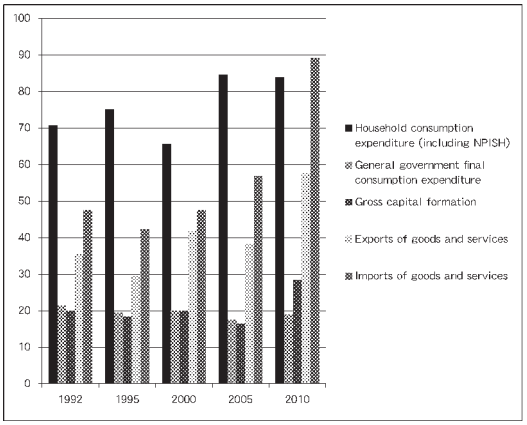
Appendix 1 (continued)

GDP breakdown by Expenditure

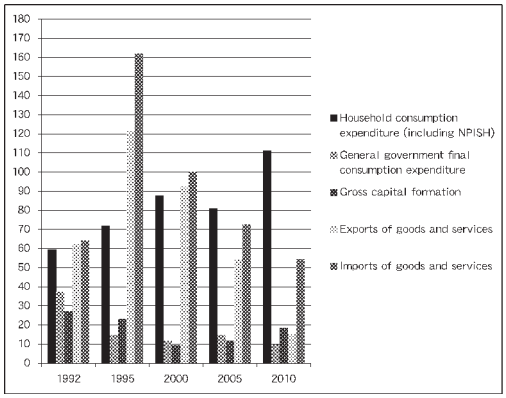
Kazakhstan



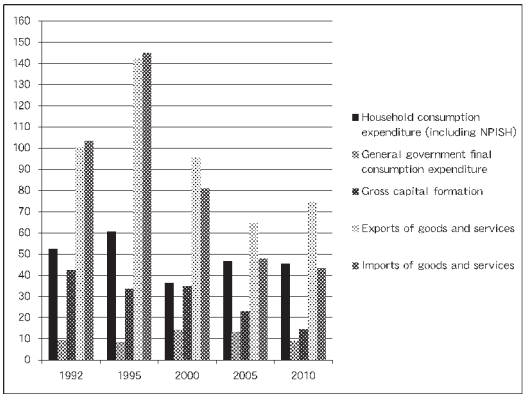
Kyrgyzstan



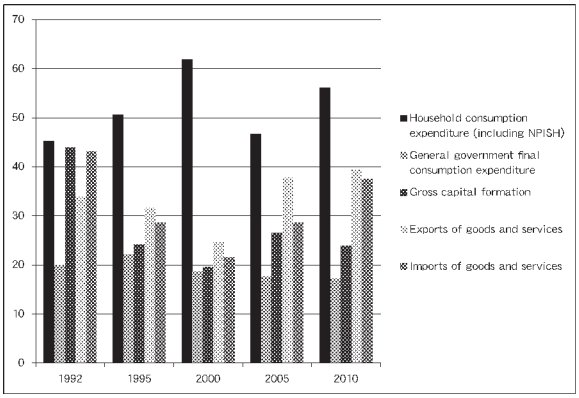
Tajikistan



Turkmenistan



Uzbekistan



Source: *UNCTAD statistics online statistical database*, http://unctadstat.unctad.org/.

Appendix 2

IMF de facto classification of countries' monetary frameworks and exchange rate arrangements

Monetary frameworks
Exchange rate anchor - the monetary authority buys or sell foreign exchange to maintain the exchange rate at its predetermined level or within a range. The exchange rate thus serves as the nominal anchor or intermediate target of monetary policy. *Monetary aggregate target* - the monetary authority uses its instruments to achieve a target growth rate for a monetary aggregate, such as reserve money, M1, or M2, and the targeted aggregate becomes the nominal anchor or intermediate target of monetary policy. *Inflation-targeting framework* - This involves the public announcement of numerical targets for inflation, with an institutional commitment by the monetary authority to achieve these targets, typically over a medium-term horizon. Monetary policy decisions are often guided by the deviation of forecasts of future inflation from the announced inflation target, with the inflation forecast acting (implicitly or explicitly) as the intermediate target of monetary policy. *Other monetary framework* - The country has no explicitly stated nominal anchor, but rather monitors various indicators in conducting monetary policy. This category is also used when no relevant information on the country is available.
Exchange rate arrangements
No separate legal tender - this category involves confirmation of the country authorities' de jure exchange rate arrangement. The currency of another country circulates as the sole legal tender (formal dollarization). Adopting such an arrangement implies complete surrender of the monetary authorities' control over domestic monetary policy. *Currency board* - this category involves confirmation of the country authorities' de jure exchange rate arrangement. A currency board arrangement is a monetary arrangement based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuance authority to ensure the fulfillment of its legal obligation. *Conventional peg* - for this category the country formally pegs its currency at a fixed rate to another currency or a basket of currencies, where the basket is formed. There is no commitment to irrevocably keep the parity, but the exchange rate may fluctuate within narrow margins of less than ±1% around a central rate—or the maximum and minimum values of the spot market exchange rate must remain within a narrow margin of 2% for at least six months. *Stabilized arrangement* - classification as a stabilized arrangement entails a spot market exchange rate that remains within a margin of 2% for six months or more (with the exception of a specified number of outliers or step adjustments) and is not floating. The required margin of stability can be met either with respect to a single currency or a basket of currencies, where the anchor currency or the basket is ascertained or confirmed using statistical techniques. *Crawling peg* - Classification as a crawling peg involves confirmation of the country authorities' de jure exchange rate arrangement. The currency is adjusted in small amounts at a fixed rate or in response to changes in selected quantitative indicators, such as past inflation differentials vis-à-vis major trading partners or differentials between the inflation target and expected inflation in major trading partners. *Crawl-like arrangement* - for classification as a crawl-like arrangement, the exchange rate must remain within a narrow margin of 2% relative to a statistically identified trend for six months or more (with the exception of a specified number of outliers), and the exchange rate arrangement cannot be considered as floating. *Pegged exchange rate within horizontal bands* - classification as a pegged exchange rate within horizontal bands involves confirmation of the country authorities' de jure exchange rate arrangement. The value of the currency is maintained within certain margins of fluctuation of at least ±1% around a fixed central rate, or a margin between the maximum and minimum value of the exchange rate that exceeds 2%. *Other managed arrangement* - this category is a residual and is used when the exchange rate arrangement does not meet the criteria for any of the other categories. Arrangements characterized by frequent shifts in policies may fall into this category. *Floating* - A floating exchange rate is largely market determined, without an ascertainable or predictable path for the rate. Foreign exchange market intervention may be either direct or indirect and serves to moderate the rate of change and prevent undue fluctuations in the exchange rate, but policies targeting a specific level of the exchange rate are incompatible with floating. *Free floating* - A floating exchange rate can be classified as free floating if intervention occurs only exceptionally and aims to address disorderly market conditions and if the authorities have provided information or data confirming that intervention has been limited to at most three instances in the previous six months, each lasting no more than three business days.

Source: IMF (2011), "*Annual Report on Exchange Arrangements and Exchange Restrictions*", Washington, DC: International Monetary Fund.