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POLITICAL EXCHANGE RISK IN JAPANESE ECONOMY

This article proves the existence of a new concept of "political exchange risk" in Japanese economy, also empirically testing whether a change in Japanese government can affect foreign exchange rate. We found empirical evidence that government change can affect foreign exchange rate in such a developed country as Japan, the new concept of "political exchange risk" might be applicable to other countries too, both developed and developing.

Keyword: foreign exchange risk; political exchange risk; Japan; Abenomics.

Сунг Пйю Чи

ПОЛІТИЧНИЙ ВАЛЮТНИЙ РИЗИК ЯПОНСЬКОЇ ЕКОНОМІКИ

У статті доведено існування нової, запропонованої автором концепції – політично-го валютного ризику – на даних економіки Японії. Емпіричним шляхом доведено, що зміна уряду в Японії впливає на обмінний курс йєна – долар США. Оскільки дана залежність доведена для такої розвинутої країни як Японія, цілком можливо, що політичний валютний ризик є характерним і для інших країн, як розвинених, так і тих, що розвиваються.

Ключові слова: валютний ризик; політичний валютний ризик; Японія; Абеноміка.

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Сунг Пйю Чи

ПОЛИТИЧЕСКИЙ ВАЛЮТНЫЙ РИСК ЯПОНСКОЙ ЭКОНОМИКИ

В статье доказано существование новой, предложенной автором концепции – политического валютного риска – для экономики Японии. Эмпирическим путём доказано, что смена правительства в Японии влияет на обменный курс йена – доллар США. Поскольку эта зависимость доказана для такой развитой страны как Японии, вполне возможно, что политический валютный риск характерен и для других стран, как развитых, так и развивающихся.

Ключевые слова: валютный риск; политический валютный риск; Япония; Абэномика.

Introduction.

1. Background. In order to study the political factor in foreign exchange, Korean government change effect have been empirically tested in our previous pilot study as controlling other economic factors such as inflation, interest, current account, capital account, yen-dollar exchange rate etc. The results show that Korean governments change influence won-dollar exchange rate. This empirical result presented the possibility that the political risk of government change can affect foreign exchange rate in other Asian countries.

In addition, Japan has Abenomics in its economic policy, while Korea which government has been skeptical to manage foreign exchange rate as we can see in Mbnomic.

The plan called "Abenomics" named after the Prime Minister Shinzo Abe is three-fold. It involves a massive increase in fiscal stimulus through government spending, massive increase in monetary stimulus through unconventional central bank policy, and a reform program aimed at structural improvements in Japanese economy. While fiscal stimulus and structural reform are essential components of the experiment, monetary policy is expected to do most of heavy lifting in the short term. So, let us take a look at the monetary policy behind the plan first. The goal of easy

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monetary policy is to reduce real interest rates. In Japan's case, it has a significant side effect of weakening the yen. And the yen is indeed weakening (Boesler and Matthew, 2013).

The other acronym Mbnomic means President Lee Myung-Bak's growth-oriented external economic policies. It includes weak won policy, adherence to free trade agreement (FTA) (Kim, 2008; Ja, 2008).

However, Korea is a smaller and developing country, Japan is larger and a more developed country. Therefore, if we find additional relationship between Japan government change and Japan yen-USD exchange rate in such a developed country as Japan, it can present meaningful evidence of political risk existence for foreign exchange rate.

Therefore, the main purpose of this study is to empirically test whether a change in Japanese government influences yen-USD exchange. If we empirically prove the relationship between Japanese government change and the exchange rate, the second purpose of this paper is to show political exchange risk in Japan as such.

Together with empirical results in Korean won-USD exchange rate, if we can also show that change for Japan, this result can become a significant empirical evidence to generalize the existence of political risk in foreign exchange rate.

Finally, with these empirical evidences, we can introduce a new concept of political foreign exchange exposure being different from transaction foreign exchange exposure, translation foreign exchange exposure and economic foreign exchange exposure.

2. Japanese government change. After the flexible foreign exchange system in 1973 and gradual liberalization of Japanese capital market in 1989, there have been 16 prime ministers: Toshiki Kaihu, Kiichi Miyazawa, Morhiro Hosokawa, Tsutomu Hata, Tomiichi Murayama, Ryutaro Hashimoto, Keizo Obuchi, Yoshiro Mori, Junichiro Koizumi, Shinzo Abe, Yasuo Fukuda, Taro Aso, Yukio Hatoyama, Naoto Kan, Yoshihiko Noda, Shinzo Abe. Therefore, the impact of each prime minister government change on yen-USD exchange rate can also be analyzed. After gradual liberalization of Japanese capital market in 1989, Japanese government changed as follows (Table 1).

Literature review. The theory of Purchasing Power Parity is mostly popular in determining foreign exchange rate and get its validity as a long-term theory of exchange rate determination in business and academic world. A. Shapiro (2002) stated that "purchasing power parity is widely used by central banks to determine equilibrium exchange rates and by companies to forecast currency movements". According to this theory, the consumer price index difference between Japan and the United States can influence yen-USD exchange rate.

Together with PPP, the International Fisher Effect has been also introduced as a long-term foreign exchange rate determination theory in many international finance textbooks. "The international Fisher effect says that currencies with low interest rates are expected to appreciate relative to currencies with high interest" (Shapiro, 2002), and the ability of interest differentials to anticipate currency change is supported by empirical studies by (Giddy and Duffey, 1975; Aliber and Stickney, 1975). This means the interest difference between Japan and the United States can affect the long-term yen-USD exchange rate equilibrium.

Table 1. Japanese government change (1990-current) (www.britannica.com)

Government	From	To	Party
Toshiki Kaihu	February 1990	November 1991	LDP (Jiminto)
Kiichi Miyazawa	November 1991	August 1993	LDP (Jiminto)
Morhiro Hosokawa	August 1993	April 1994	JNP (Nihon Shinto)
Tsutomu Hata	April 1994	June 1994	JRP (Shinseito)
Tomiichi Murayama	June 1994	January 1996	JSP (Nihon Shakato)
Ryutaro Hashimoto	January 1996	July 1998	LDP (Jiminto)
Keizo Obuchi	July 1998	April 2000	LDP (Jiminto)
Yoshiro Mori	April 2000	April 2001	LDP (Jiminto)
Junichiro Koizumi	April 2001	September 2006	LDP (Jiminto)
Shinzo Abe	September 2006	September 2007	LDP (Jiminto)
Yasuo Fukuda	September 2007	September 2008	LDP (Jiminto)
Taro Aso	September 2008	September 2009	LDP (Jiminto)
Yukio Hatoyama	September 2009	8 June 2010	DPJ (Minshuto)
Naoto Kan	June 2010	September 2011	DPJ (Minshuto)
Yoshihiko Noda	September 2011	December 2012	DPJ (Minshuto)
Shinzo Abe	December 2012	present	LDP (Jiminto)

According to M. Fleming (1962) and R. Mundell (1963), current account and capital account can become the other factors determining foreign exchange rate in the case of free capital movement among countries. In addition, for an open economy like Japan, S. Edwards's (1994) stated that foreign exchange rates can be determined not only by capital account but also by terms of trade.

Besides the above general foreign exchange determination theories, in case of Korean won-dollar exchange rate determination, H.-S. Park (1999) mentioned that Korean won-dollar exchange rate can be affected by foreigner's purchasing volume of Korean equity.

Considering that Japanese economy is somewhat similar to Korean in such areas as higher dependency on other countries and stronger capital account effect after the Asian financial crisis in 1997, the combined model of Edwards and Park could be considered suitable for this study.

However, political factors such as government change have not been included in the above economic models despite that we can often see articles which show how the yen-dollar exchange rate policy has adapted after the Abe government in Japan and Myung-Bak Lee government in Korea.

Therefore, in order to study the political factor in foreign exchange rate change, this study will empirically test Japanese government change effect as controlling other economic factors such as inflation, interest, current account, and capital account, etc. in Japan.

Research hypotheses and methodology.

1. Research hypotheses. Discussions related to foreign exchange rate in the previous chapter can be concluded by the following hypotheses:

Hypothesis 1. Government change influences foreign exchange rate in the case of Japan.

The hypothesis will be tested by ANCOVA and indirectly supported by regression models. H1 is expected to check whether the exchange rate responds to government change.

2. Methodology.

2.1. Data and sample. For our empirical test, monthly data from the Economic Statistics System of the Bank of Japan are used, 1990 to 2014. M1 statistics of Japan and the United States are used for monetary volume since monetary volume is largely related to monetary demand for transaction. The 31–90 Days CD interests in Japan and the 30 Days CD interests in the United States are taken for short-term interests, while the 10-year government interests in Japan and the 5-year Treasury bill are taken for the long-term interest rate. The index of export price and the index of import price are used for trade. The seasonable variable is adjusted by the seasonal adjustment variable.

2.2. ANCOVA model. The following ANCOVA model in SAS was used to test H1. One reason for using ANCOVA is that our analytical focus is whether or not the continuous data on YEN-USD, can differ according to the government variable of non-metric data of GOV (Dummy Variable for each government from the prime minister Toshiki Kaihu to the prime minister Shinzo Abe). The other reason is that continuous data PPP, DI, CU (current account), CP (capital account) and FN (foreigner's net purchase of Japan equity), and so on can be expected to strongly affect the dependent variable YEN and used as the control variable for the analysis.

ANCOVA formulas with GOV are as follows:

$$YEN = b_0 + b_1(GOV) + \varepsilon; \quad (1)$$

$$YEN = b_0 + b_1(CU) + b_2(GOV) + \varepsilon; \quad (3)$$

$$YEN = b_0 + b_1(CU) + b_2(CP) + b_3(GOV) + \varepsilon; \quad (4)$$

$$YEN = b_0 + b_1(PPP) + b_2(GOV) + \varepsilon; \quad (6)$$

$$YEN = b_0 + b_1(PD) + b_2(GOV) + \varepsilon; \quad (8)$$

$$YEN = b_0 + b_1(PD) + b_2(DI) + b_3(GOV) + \varepsilon; \quad (9)$$

$$YEN = b_0 + b_1(M1) + b_2(UM1) + b_3(DI) + b_4(GOV) + \varepsilon; \quad (10)$$

$$YEN = b_0 + b_1(M1) + b_2(UM1) + b_3(DI) + b_4(LID) + b_5(GOV) + \varepsilon; \quad (12)$$

$$YEN = b_0 + b_1(CP) + b_2(M1) + b_3(UM1) + b_4(DI) + b_5(LID) + b_6(GOV) + \varepsilon; \quad (14)$$

$$YEN = b_0 + b_1(CP) + b_2(M1) + b_3(UM1) + b_4(DI) + b_5(LID) + b_6(TTI) + b_7(GOV) + \varepsilon; \quad (16)$$

$$YEN = b_0 + b_1(CP) + b_2(M1) + b_3(UM1) + b_4(DI) + b_5(LID) + b_6(TTI) + b_7(FN) + b_8(GOV) + \varepsilon. \quad (18)$$

The regression models without GOV are as follows:

$$YEN = b_0 + b_1(CU) + \varepsilon; \quad (2)$$

$$YEN = b_0 + b_1(PPP) + \varepsilon; \quad (5)$$

$$YEN = b_0 + b_1(PD) + \varepsilon; \quad (7)$$

$$YEN = b_0 + b_1(M1) + b_2(UM1) + b_3(DI) + \varepsilon; \quad (11)$$

$$YEN = b_0 + b_1(M1) + b_2(UM1) + b_3(DI) + b_4(LID) + \varepsilon; \quad (13)$$

$$YEN = b_0 + b_1(CP) + b_2(M1) + b_3(UM1) + b_4(DI) + b_5(LID) + b_6(TTI) + \varepsilon; \quad (15)$$

$$YEN = b_0 + b_1(CP) + b_2(M1) + b_3(UM1) + b_4(DI) + b_5(LID) + b_6(TTI) + b_7(FN) + \varepsilon, \quad (17)$$

where *YEN* – Japanese yen-dollar exchange rate; *GOV* – Dummy Variable for each government; Toshiki Kaihu – 1, Kiichi Miyazawa – 2, Morhiro Hosokawa – 3, Tsutomu Hata – 4, Tomiichi Murayama – 5, Ryutaro Hashimoto – 6, Keizo Obuchi – 7, Yoshiro Mori – 8, Junichiro Koizumi – 9, Shinzo Abe – 10, Yasuo Fukuda – 11, Taro Aso – 12, Yukio Hatoyama – 13, Naoto Kan – 14, Yoshihiko Noda – 15, Shinzo Abe – 16; *CU* – current account; *CP* – capital account; *PPP* – Purchasing Power Parity = Consumer Price Index in Japan / Consumer Price Index in the USA; *PD* – Price Difference = Consumer Price Index in Japan – Consumer Price Index in the USA; *DI* – short-term interests difference between Japan and the USA = the 3 month yield on CD in Japan – the 3 month yield on CD in the USA; *M1* – M1 statistics of Japan for monetary volume; *UM1* – M1 statistics of the USA; *LID* – long-term interests difference between Japan and the USA = the 10 year government interests in Japan – the 5 year Yield of the US Treasury Notes; *TTI* – Net Barter terms of trade Index = the index of export price / the index of import price; *FN* – Foreigners' net purchase of Japan equity (trading value).

Results and conclusions. The main objective of this study is to prove the existence of the new concept of "political exchange risk" in Japan which is a developed country shaping a "nomic" policy. It is empirically tested whether a change in Japanese government can affect foreign exchange rate.

The secondary objective of this study is to support empirically that foreign exchange rate can be changed because of "nomics" political factor.

Table 2. Japanese yen-USD exchange rate basic statistics of each government, 1990 to 2014, author's

Number	Mean	Standard	Deviation
1	21	139.610952	9.2611257
2	21	121.566190	8.6009694
3	8	107.007500	2.5964192
4	2	103.205000	0.7848885
5	19	96.210000	6.6547894
6	30	119.479000	10.2595323
7	21	115.666190	10.3097000
8	12	112.058333	6.0166222
9	65	115.943692	7.3804197
10	12	118.932500	2.2878896
11	12	107.642500	4.1453679
12	12	95.196667	3.1818358
13	9	90.870000	1.2616259
14	15	82.042107	2.8530330
15	15	79.338540	2.0229960
16	17	99.072941	3.9453640

Table 3. ANCOVA and regression results, author's

Independent Variable	Number of observation from 1990 to 2014 (N = 289)					
	(1)	(2)	(3)	(4)	(5)	(6)
Coefficient Variable	6.452899	13.78486	6.39500	6.332796	11.85783	6.110801
CU		0.00023833(2.07)**	1.39052(0.03)	1.80976(0.04)		
CP				237.19286(5.1)**		
PPP					105.50232(13.30)***	1510.35873(33.32)***
PD						
M1						
UM1						
DI						
LID						
TTI						
FN						
GOV	65513.53363(86.45)***		38346.78045(73.60)***	36265.77702(70.98)***		36783.20416(54.10)***
R2	0.825035	0.0192	0.799514	0.804341	0.3804	0.844016
F-Value	86.45***	4.28**	69.12***	65.46***	176.80***	92.32***
(7)		(8)	(9)	(10)	(11)	(12)
Coefficient Variable	11.58522	6.190110	6.175384	6.110175	11.11086	6.115243
CU						
CP						
PPP						
PD	0.33931(14.10)***	1187.05079(25.52)***	1223.68842(26.43)***			
M1				1492.72290(32.94)***	-8.441E-15(-1.23)	1160.55522(25.56)***
UM				37.96605(0.84)	-0.01242(-8.88)***	24.44105(0.54)
DI				8.55216(0.19)	1.18106(3.35)***	1.00398(0.02)
LID						25.01181(0.55)
TTI						
FN						
GOV	34225.56550(49.05)***		34314.40820(49.42)***	30578.38825(44.98)***		30306.242063(44.51)***
R2	0.4085	0.839941	0.841285	0.845191	0.4598	0.845506
F-Value	198.9***	89.54***	84.81***	82.20***	81.13***	77.77***

Continuation of Table 3

Independent Variable	Number of observation from 1990 to 2014 (N = 289)									
	(13)	(14)	(15)	(16)	(17)	(18)				
Coefficient Variable	11.09169	5.813551	8.41973	5.820070	8.41994	5.726180				
CU		316.98802(8.09)***	0.00095388(-1.47)							
PPP				297.595580(7.58)***		281.487072(7.41)***				
PD										
MI	-6.259E-15(-0.89)	1104.84581(28.21)***	4.56727E-14(3.47)***							
UMI	-0.01221(-8.70)***	66.86813 (1.71)	-0.00452(-3.21)***	453.847835(11.56)***	3.48139E-14 (2.04)**	69.572195(1.83)				
CD	2.12865(2.81)***	7.85914(0.20)	0.03445(0.04)	74.231757(1.89)	-0.00534(-3.27)***	7.530282(0.20)				
LID	-1.79216(-1.41)	19.71526 (0.50)	-5.06371(-3.72)***	0.722919(0.02)	0.23453(0.30)	13.919476(0.37)				
TTI			24.84941(3.18)***	19.180389(0.49)	-4.94772(3.62)***	12.504890(0.33)				
FN				21.413298(0.55)	19.38004(2.03)**	79.933463(2.10)				
GOV		30306.24206(44.51)***			1.5547E-11(0.99)	291.750209(7.68)***				
R2	0.4635	0.838105	0.6437	9568.764133(22.16)***		9779.216584(23.40)***				
F-Value	61.56***	65.68***	64.13***	0.838541	0.6453	0.844482				
				61.71***	55.11***	60.64***				

*** 0.001 significance level; ** 0.01 significance level.

The major findings are that the GOV of the dummy variable for each government are significant at the 1% significance level in every regression and ANCOVA models in Table 3. As controlling largely significant CU, CP, PPP, PD, M1, UM1, DI, and LID, FN in most regression and ANCOVA models, the GOV variable is significant. These findings empirically support our H1: Government changes influence foreign exchange rate in the case of Japan.

It means that Japanese government change seems to be important in Japanese exchange rate determination as controlling the variables such as PPP, the price level differences, short- and long-term interest differences, and monetary volume difference to influence exchange rate in most academic models.

The interpretation of these empirical results is that if a Japanese government changes, a new Japanese government adapts their own economic policy and this results in a different Yen-USD exchange level. In other words, together with classical economic factors such as inflation, interest rate and balance of payment factors, Japanese government change as a political factor can have significant affect on the exchange rate.

Therefore, the main conclusion of this study is that we can confirm the existence of the new concept of "political exchange risk" in Japanese economy as it is empirically proved here that Japanese government change can affect foreign exchange rate.

The second conclusion is that the result of this study supports empirically that foreign exchange rate can be changed because of "nomics" such as Abenomics in the case of Japan. Therefore, together with the results of our previous pilot on Korea with its Mbnomics, we can conclude that the political factor of "nomics" can affect foreign exchange rate.

Despite the fact that Japan is a large and developed country, government change as a political factor can affect its foreign exchange rate. This can be one of very significant empirical results to prove the existence of "political exchange risk" in the developed country context.

However, the limitation of this study is that in order to introduce this new concept of a "political exchange risk" into textbooks we need more country case studies to generalize the existence of this risk regardless economic policy, economic size and economic development level.

Therefore, our further research would empirically confirm the existence of a "political exchange risk" in other countries, regardless their economic size and economic development but also with no nomics policy for wider generalization.

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