Did the Plaza Accord Cause Japan's Real Estate Bubble?

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Abstract

In 1985 the international exchange rate intervention known as "The Plaza Accord" was carried out between the G-5 countries, the US, Japan, Germany, France, and the UK. In this study I employ the synthetic control method (SCM) to examine if there was a causal effect of The Plaza Accord on residential housing prices in Japan. Following the agreement Japan experienced a bubble in urban real estate and the stock market, which burst and was followed by the period known as "The Lost Decade," characterizing Japan's stagnant economic growth through the 90s into the 2000s. I find small and insignificant effects of the Plaza Accord on real housing prices in the several years following it, providing evidence that the Accord did not exacerbate the bubble.

1. Introduction

Housing and asset values in Japan reached new highs in the latter half of the 1980s, a period often referred to as *baburu jidai*, or the bubble era. During this time, the Nikkei 225, a stock market index for the Tokyo Stock Exchange, tripled in value from 12,598 yen to 38,915 yen. Real estate prices also surged dramatically. Residential land prices nearly doubled and commercial land prices tripled (Fukao 2003). The Urban Land Price Index, which includes commercial areas in Japan's six largest cities, peaked in 1990 (Okina et al. 2001), signaling the height of the real estate bubble. Bank credit also expanded rapidly during this period, with lending to real estate developers and households increasing by 150% from 1985 to 1990, standing in contrast to the 77% increase in bank credit to the private sector (Hoshi and Kashyap 2000). Japan was in the midst of what is widely regarded as an extraordinary asset bubble (Fukao 2003; Okina et al. 2001; Itoh et al. 2015; Oust and Hrafnkelsson 2017).

In September 1985, at the onset of the rise in housing and asset prices, the G-5 nations (the U.S., Britain, Germany, France, and Japan) signed the Plaza Accord, an agreement designed to depreciate the U.S. dollar relative to the other G-5 nation's currencies, particularly the yen and

deutsche mark (Bergsten and Green 2016). Whether the Plaza Accord played a role in Japan's real estate and asset bubble is unclear. Some scholars argue that the Plaza Accord was a catalyst for the bubble (Gao 2001; Grimes 2001; Schumann 2017; Higashino 2015, 2017; Zhang 2021). Frankel (2016, p. 63) even refers to the widespread belief that the Plaza Accord directly caused the bubble as "a sort of conspiracy theory, which continues to circulate widely in Asia." Other scholars dismiss the Plaza Accord as an important contributing factor. They note that the rise in real estate and asset prices began in 1983, prior to the Accord, and point to other factors such as Japan's land tax policy, financial deregulation, and poor fiscal and monetary policy coordination as causes (Fukao 2003; Okina et al. 2001; Hoshi and Kashyap 2004; Corbett and Ito 2010; IMF 2011). In this paper I test whether the Plaza Accord meaningfully contributed to the bubble using the synthetic control method (Abadie and Gardeazabal 2003; Abadie et al. 2010, 2015). My results indicate that the Plaza Accord had small and insignificant effects on Japan's housing market.

Understanding the Japanese real estate bubble is of great interest to both researchers and policymakers. That bubble's bursting in the early 1990s heralded two decades of economic stagnation, known as the "lost decades." Between 1990 and 2010, Japan's GDP growth slowed dramatically, averaging just 0.9% in the 1990s and declining further to 0.3% in the 2000s, compared to the United States' growth rates of 2.2% and 0.5% during the same periods (Keiichiro 2017, p. 38). Unemployment in Japan also rose from 2.3% in 1990 to a peak of 5.8% in the mid-2000s. Meanwhile, efforts by the Japanese government and the Bank of Japan (BoJ) to mitigate the economic downturn through aggressive fiscal and monetary policies—including near-zero interest rates and a series of fiscal stimulus packages—proved largely ineffective (Iyoda 2010; Powell 2002).

Claims linking the Plaza Accord to Japan's housing bubble posit that the sharp appreciation of the yen following the Accord prompted Japan's monetary authorities to adopt expansionary monetary policies to counteract its effects on export competitiveness and to avoid a possible recession (Gao 2001; Grimes 2001; Kamikawa 2006; Higashino 2015, 2017; Zhang 2017). The BoJ's monetary easing contributed to a significant increase in money supply and credit, which further fueled speculative investment in real estate. Land demand for office construction in major cities and luxury countryside resorts increased during this time (Iyoda 2010; Yoshikawa 2002). The proportion of bank loans to small and medium-size companies that used land or stocks as collateral increased over 1984 to 1987. From 1985 to 1989 real estate industries borrowed 17.7 trillion yen (Gao 2001, p. 188). With the increase in land and stock valuations in 1986 after the Accord, and the discount rate easing, the borrowing capacity of these companies subsequently increased. This allowed for even greater financial speculation with the land and stock bubbles fueling one another.

Other scholars claim that mechanisms independent of the Accord caused the bubble. Japan's financial deregulation, which began in the late 1970s and accelerated in the 1980s, significantly altered the banking landscape (Hoshi and Kashyap 2000; Okina et al. 2001; Fukao 2003; IMF 2011). Ceilings on bank deposit interest rates were gradually removed and restrictions on corporate bond issuance were eased, prompting many large corporations to shift from traditional bank loans to capital market funding (Fukao 2003). This shift squeezed bank profits and incentivized banks to expand into new sectors, particularly real estate lending. This side of the

debate argues that there was a belief that land prices would continue to rise indefinitely. Combined with loose credit policies, this created an environment ripe for a housing and asset-price bubble. During the 1980s, Japan's bank lending-to-GDP ratio surged from 70% to 108%, while the share of bank loans to the manufacturing sector declined and loans to real estate and finance companies increased (Fukao 2003). Low property taxes, high inheritance taxes, and deductions for interest payments on real estate loans created strong incentives for both businesses and individuals to invest heavily in property (Fukao 2003; Okina et al. 2001).

This paper aims to fill a gap in the literature by using the synthetic control method (SCM) to assess the causal impact or lack thereof of the Plaza Accord on Japan's real estate bubble. The SCM allows for the construction a synthetic version of Japan that did not experience the Accord, using a weighted combination of non-G-5 countries (which were not part of the Accord). By comparing post-Accord outcomes for Japan versus its synthetic, the SCM enables me to isolate the effect of the Accord on Japan's housing prices. Previous studies have successfully applied this methodology to investigate various policy impacts, such as the effects of durable left-populist regimes in Latin America (Absher et al. 2020) and gun control policies in the U.S. (Donohue et al. 2019). Applying this method to Japan's housing bubble offers a novel contribution to the debate over the Accord's role in Japan's economic trajectory.

The remainder of this paper is organized as follows: Section Two provides background on the Plaza Accord and the theoretical framework linking it to the rise in housing prices; Section Three details the data and method; Section Four presents the results; and Section Five concludes with a discussion of the findings and their implications.

2. Background

In the lead-up to the Plaza Accord, the U.S. was grappling with a significant and growing current account deficit, particularly with Japan. As Grimes (2001, p. 110) notes, this deficit was fueled in part by the rise in Japanese private savings around 1980-81, which financed both public and private consumption and investment in the U.S. The US was eventually pressured by its G-5 and Economic Summit partners to correct the imbalance (Grimes 2001, p. 111). Pressure on the US Congress to rectify the US's trade imbalance with Japan became increasingly stronger, and in the summer of 1985, the US government initiated an exchange rate adjustment for correcting the external imbalance (Itoh et al. 2016, p. 124).

A G-5 meeting was held at the Plaza Hotel in New York between the finance ministers and central bank governors from Japan, the US, the UK, West Germany, and France on September 22, 1985. The Plaza Accord was an agreement between the G-5 of concerted intervention by selling the dollar to appreciate nondollar currencies. The group kept confidential the targeted appreciation of nondollar currencies, but an informal report revealed to the press later stated that a "10-12 percent downward adjustment of the dollar from present levels would be manageable over the near term" (Funabashi 1988, Gyohten 2013, and Ito 2016).

At the time of the Plaza Accord the yen was at a value of 231.90/dollar. By December 1988 it had appreciated to 121/dollar (Figure 7). Scholars claim that Japan was eager to have the yen appreciate, even increasing the discount rate to appreciate it from the domestic side from October

1985 until it was cut in January 1986 (Ito 2016; Itoh et al. 2016). In January 1987, the BoJ decided to reduce the discount rate to 2.5 percent before the Louvre Accord, keeping it at that level until May 1989 (Itoh et al. 2016; Figure 8). In conjunction with these decreases in the discount rate, was the growth of money supply. The changes in money supply continued to grow after the Plaza Accord. The year-on-year change of M2+CD increased from +8.2 percent in December 1986 to +12 percent from late 1987 to early 1988 (Itoh et al. 2016; Table 8; Figure 9).

The Ministry of Finance (MoF) rolled out a fiscal expansion program of 6 trillion-yen May 1987 to stimulate domestic demand. Part of this stimulus package was that local governments adopt large-scale urban development plans in the Tokyo metro area, which fueled the already rising land prices while also increasing the stock prices of land-owning companies (Gao 2001, p. 181). This combination of easy monetary policy and fiscal stimulus channeled to construction and real estate, along with an over 30 percent increase in corporate profits across all industries, may have fueled excessive financial speculation (Gao, p. 182).

In the summer of 1986, the growth of the money supply coincided with land price increases in commercial areas in central Tokyo that sprawled to residential areas in the city and commercial areas of other cities (Itoh et al. 2016). Despite the discount rate lowering by the BoJ the yen continued to appreciate. Higashino (2017) highlights that land prices in Tokyo had already begun rising by 1983, especially in key commercial districts such as Chiyoda, Chuo, and Minato. In these districts financial institutions not only lent for real estate developers to acquire land, but they also paid their taxes, fees, and interest to be paid to the bank, incentivizing more borrowing by developers (Higashino 2017, p. 98). Prior to the Accord, government sales of public lands also took place based on no-bid contracts, as opposed to the usual practice of open competitive bidding (Higashino 2017, p. 99-100). These rising prices were limited to only Tokyo, however, as Miyao (1991, p. 132) points out that in other regions of the country land prices were stable or even declining at the time. While land prices began rising in Tokyo prior to the Accord, the increases were not as sharp as they would be post-Accord, where the rise in land prices would spread to commercial areas in other major cities like Osaka and Nagoya and into residential areas across the country (Okina et al. 2001; Higashino 2017).

3. Method and Data

3.1 Method

I employ the synthetic control method as developed by Abadie and Gardeazabal (2003) and expanded on in Abadie et al. (2010, 2015) to construct a counterfactual to estimate the impact of the Plaza Accord on housing prices in Japan. Ideally, I could observe a second Japan that didn't experience the Accord to compare its housing prices against the real Japan. Of course, this is not a realistic possibility, but the synthetic control method enables me to construct a synthetic Japan to serve as a viable counterfactual for comparison.

To construct my donor pool, I selected 16 countries based on their similarity to Japan in terms of either geography or economic development during the observation period. The countries included in the donor pool are Australia, Belgium, Canada, Denmark, Finland, Ireland, Israel, Italy, Korea, Netherlands, Norway, New Zealand, Portugal, Spain, Sweden, and Switzerland.

These countries were chosen to reflect a range of developed economies that share certain characteristics with Japan, such as high-income levels and advanced financial markets. Including countries with similar characteristics helps avoid interpolation bias by ensuring that the synthetic Japan is constructed from countries that provide a plausible comparison. Interpolation bias is the result of including donor pool units that are poor controls for the treated unit. Donors can be poor controls if there are large discrepancies in observed or unobserved characteristics between them and the treated unit. Use of poor controls ultimately results in a poor counterfactual and biased inferences (Abadie 2021, p. 401).

In constructing the synthetic Japan, I use both pre-treatment outcome variables and a set of indicator variables (or covariates) that are important in determining housing prices. The synthetic control algorithm then creates a weighted average of the selected donor countries that minimizes differences in the housing price index before the Plaza Accord, while also balancing the synthetic Japan on the indicator variables. The algorithm places greater weight on variables that are more important for determining the outcome variable. While I primarily follow Abadie and Vives-i-Bastida (2022) by using both outcome and indicator variables, I also apply the approach recommended by Ferman et al. (2020), which advocates using only pre-treatment outcomes without other indicators. I report results from both approaches and find no significant difference in effect or significance between them.

As a robustness check, I perform an "in-time placebo test" developed by Abadie et al. (2015). In the context of my study, this shifts the treatment date to a pre-Plaza Accord date. If a sizable effect was estimated by the SCM under the regular treatment date, but changing this date also resulted in the estimation of large effects, then the validity of the result would be less reliable (Abadie et al. 2015, p. 499; Abadie 2021). This placebo test helps ensure that any observed effects are truly attributable to the Accord rather than other coincidental factors. The "in-time placebo" is an additional robustness check to the "in-space placebo" that results in the p-values allowing for inference of the estimated effect. These "in-space placebos" will be discussed in the following section.

3.2 Inference

I follow Cavallo et al. (2013) by constructing permutation tests to examine the statistical significance of the deviation in the housing price index of real Japan from synthetic Japan in the post-Plaza Accord period. Specifically, I first create synthetic counterfactuals for each of my donor pool countries (placebos) using the same procedure as with Japan. I then measure the absolute difference between synthetic Japan and real Japan and compare this effect relative to the absolute differences observed in each of the placebos during each post-treatment year. To account for the possibility that countries with worse pre-treatment fits may experience larger post-treatment deviations, I divide each effect by the pre-treatment root mean squared prediction error (RMSPE). The resulting p-values are calculated by counting the number of placebos with larger effects than Japan, divided by the total number of placebos.

3.3 Identification

The synthetic control method relies on two key identifying assumptions to establish the causal impact of the Plaza Accord: (1) that the observed effects are attributable solely to the Accord, with no influence from other contemporaneous events, and (2) the Stable Unit Treatment Value Assumption (SUTVA), which holds that only the treated unit (Japan) is affected by the intervention.

Isolating the treatment effect of the Plaza Accord from other potential interventions during the 1975-1995 observation period is crucial. While the Plaza Accord was the most significant exchange rate agreement during this time, it was not the only one. Notably, the 1987 Louvre Accord aimed to stabilize exchange rates after the Plaza Accord, and other minor agreements earlier in 1985 also sought to drive down the dollar. However, the Plaza Accord stands out as the first widely publicized international macroeconomic and exchange rate intervention, often cited as the most successful example of international economic cooperation since the Bretton Woods agreement (Bergsten and Green 2016, p. 1).

For Japan, the Plaza Accord holds particular significance, as it marked a decisive shift in the exchange rate policy that accelerated the yen's appreciation and triggered the BoJ's subsequent monetary easing (Ito 2016, p. 73). Although the yen had been appreciating before the Accord, the rate of appreciation increased sharply after the Accord, leading to the BoJ's decision to lower the official discount rate in 1986. This monetary policy response aimed to mitigate extreme fluctuations in the exchange rate and stimulate domestic demand, which as mentioned before is believed to have led to the rise in housing prices (Okina et al. 2001, p. 421).

The Louvre Accord, by contrast, primarily focused on exchange rate stability without explicit target levels and did not provoke the same policy shifts within Japan. The yen continued to appreciate after the Louvre Accord despite efforts to stabilize it, reinforcing the Plaza Accord's unique role in influencing Japan's monetary policy and economic conditions during the period under study. Thus, while acknowledging the potential influence of other agreements, the Plaza Accord remains the most plausible catalyst for the observed housing market effects, distinguishing it as the primary treatment under investigation.

Regarding the SUTVA assumption, the Plaza Accord directly involved only the G-5 countries—the US, Japan, the UK, Germany, and France—whose currencies were specifically targeted for appreciation relative to the dollar. None of the 16 countries in my donor pool were directly treated by the Accord, as their exchange rates were not manipulated through multilateral coordinated foreign exchange interventions like those conducted among the G-5. Although some donor countries did sell U.S. dollars to aid in the depreciation of the USD, these actions were neither as substantial nor as coordinated as those undertaken by the G-5 and did not result in the same level of macroeconomic intervention (Ito 2016). Data supports this distinction: while G-10 countries not part of the G-5 collectively sold $2 billion USD following the Accord, Japan alone sold $3 billion by the end of October 1985, just one month after the agreement (Ito 2016, p. 76). Additionally, Japan sold another half billion USD in December of the same year (Ito and Yabu 2020, p. 27). For comparison, the US sold $3.2 billion, and Germany, France, and the UK collectively sold $2 billion by October (Ito 2016, p. 76). Data from FRED on U.S. transactions in

other currencies (Figure 10) indicates that the U.S. did not purchase other currencies with dollars as part of the Plaza agreement. Further evidence from FRED, Ito (2016, p. 78-79), and Ito and Yabu (2020, p. 27) shows that the primary foreign exchange interventions were focused on the dollar-yen and dollar-deutsche mark pairs. Only the non-U.S. G-5 countries' currencies appreciated against the dollar following the Accord, due to their coordinated multilateral interventions (Ito 2016, p. 76). For these reasons, I argue that my donor pool does not violate SUTVA.

3.4 Data

I chose donor pool countries based on their geographic proximity to Japan, their status as OECD members, and their similar economic development levels during the observation period. Additionally, I included countries that were similarly affected by international economic conditions during the same period. The donor pool countries are listed in Table 1.

The primary data source for my outcome variable, the Real Housing Price Index (RHPI), is the Federal Reserve Bank of Dallas. This dataset contains RHPI data for Japan and all donor countries from 1975 until 1995. Although RHPI data is available for Japan for years prior to 1975, it is not consistently available for other countries in my donor pool, such as South Korea, which is why my observation period begins in 1975. While the OECD also provides RHPI data, their coverage for some countries only starts in the 1980s, further justifying the choice of 1975-1995 as the observation period.

The indicator variables used in constructing the synthetic Japan include the log of per capita GDP, log of urban population, imports and exports as a percentage of GDP, gross domestic savings as a percentage of GDP, and inflation as an annual percentage of consumer prices. These variables are sourced from the World Bank World Development Indicators database. Table 2 contains descriptive statistics for the outcome and indicator variables.

4. Results

This section presents the findings of the synthetic control method used to assess the impact of the Plaza Accord on Japan's real housing prices. Three models were constructed: the baseline synthetic control, a model using only pre-treatment outcomes, and an in-time placebo test. Additionally, permutation tests for the baseline and lagged models were conducted to assess the statistical significance of the treatment effects.

Table 3 and Table 5 show the donor weights and root mean square prediction error (RMSPE) from the baseline model and the model using lagged values only. In the baseline model, Switzerland carries the highest weight at 70.40%, followed by South Korea at 25.40%, and Italy at 4.20%. The RMSPE for this model is 4.85. The second model, which uses only lagged predictors, displays a similar pattern with Switzerland (60.30%) and South Korea (27.40%) as dominant contributors, with an RMSPE of 4.84. These donors likely reflect a synthetic Japan overall, particularly Switzerland which was a highly developed economy at the time. South Korea, while not as economically developed as Japan at the time, shares not only regional characteristics with Japan, but also a deep historical relationship for thousands of years.

The predictor balance from Table 4 shows a close alignment between treated Japan and the synthetic control, especially for key economic indicators such as the log of GDP, real housing price index for 1979 and 1981, and inflation. However, there are notable discrepancies in terms of imports and exports as a percentage of GDP, where the synthetic control differs significantly from actual Japan.

The baseline synthetic control results are illustrated in Figure 1, where the real housing price index (RHPI) for Japan is compared with its synthetic counterpart. Prior to 1985, the two lines are reasonably aligned, indicating that the synthetic Japan provides a valid counterfactual for the pre-treatment period. After 1985, the synthetic Japan's RHPI does not sharply diverge from the real outcomes; more or less it follows the same trend of rising housing prices, but just not to the same degree. In 1989 there is even a negative treatment effect, although insignificant. This lack of a treatment effect is displayed in Figure 2 and the p-values above the treatment effect bars show any difference is statistically insignificant for the first five years post Plaza Accord. From 1991 onwards, the p-values reach zero, but one must exercise caution in making any causal inferences in this case. While Abadie (2021, p. 413-414) says that extensive post-intervention information allows the researcher to have a more complete picture of the treatment effects, he mentions this in the context of whether the effect of an intervention is expected to arise gradually over time. The purported mechanisms of the Accord's connection to the bubble as discussed earlier would not account for a delayed effect, which these significant results would imply. Furthermore, the effects of the first five years are not only statistically insignificant, but also quite small. If there was a gradual increase in treatment effect, I would not expect there to be sudden, large, and statistically significant jump in treatment effect. The permutation test results in Figure 3 also confirm these findings, showing that Japan does not experience a significant post-treatment effect in housing prices from the Accord.

In addition to the reasons above, the significant and large effects from 1991 onwards must also be interpreted cautiously because of Japan's economic downturn beginning in 1990. The Nikkei 225 peaked at the end of December 1989 at 38,915 yen, but by August 1990 it had fallen to about 26,000 yen (Grimes 2001, p. 142). Equity financing declined from 22.9 trillion yen in 1989 to 12 trillion in 1990. As stock values collapsed, banks that held stocks as collateral against their loans (many of which were in real estate) reduced lending. Consumer credit and spending declined as well (Gao 2001, p. 244). The sharp decline of real estate prices followed suit in 1991 (Figure 1). The period of 1990-1991 marks the burst of the bubble and the following years the "lost decades" as mentioned previously. Some sectors of the economy did experience growth during the 1990s, such as automobiles, machinery, pharmaceuticals, and electrical products. Sectors that had invested directly in real estate, however, such as agriculture, mining, real estate, construction, and sectors that invested in those, such as securities and banking, all suffered heavily (Miwa and Ramseyer 2006, p. 148).

The beginning of the "lost decades" is in a sense another treatment that is possibly confounding the treatment effect of the Plaza Accord. The fact that the treatment effects became highly significant and large in 1991 and onwards is likely due to the economic recession of the time; real estate being hit particularly hard during the recession supports this. To attribute the difference in real housing prices from 1991 onwards purely to the Accord when the treatment

effects of years 1986 to 1990 are small and insignificant is not possible given the economic conditions of the time.

The pre-treatment outcome only synthetic control results mirror those of the baseline model, adding further robustness to the null findings. The synthetic control graph is more or less the same with the pre-treatment fit and post-treatment lack of divergence. Of note are that the treatment effects in the lagged model are all greater than the baseline. Also, compared to the baseline model where 1989 was a negative treatment effect, there are only positive effects. As Figure 5 demonstrates the effect sizes, the p-values above the bars all show unquestionable insignificance of the results.

The final robustness check is the in-time placebo model. Here the treatment date is moved back to 1980. There is a considerable divergence of the synthetic Japan from the real one post 1980. While the number of pre-treatment years with this robustness check are limited, only 5 years, this stark divergence with the changing of the treatment date confirms the null findings. This result shows that the slight divergence in the baseline and lagged synthetic control models is likely to other confounding factors in Japan's economy at the time, confirming much of the literature thus far discounting the effect of the Plaza Accord on the asset and real estate bubbles that followed. As the literature has pointed out, there was not only a favorable tax environment for land speculation from since before the Accord, but also that during the primary bubble years 1987-1989, the exchange rate policy was no longer about appreciating the yen, but rather to support the dollar (Frankel 2016, p.63).

5. Conclusion

The findings of this paper suggest that the Plaza Accord did not have a significant causal effect on Japan's housing prices. Using the synthetic control method, I constructed a counterfactual Japan that did not experience the Accord, and the results showed minimal divergence between the actual and synthetic housing price indices. The observed rise in real housing prices in Japan during the late 1980s, while notable, cannot be directly attributed to the Accord, as the treatment effects were statistically insignificant across multiple robustness checks, including models using only pre-treatment outcomes and an in-time placebo test.

These results challenge arguments made by some researchers who have suggested that the Plaza Accord played a central role in Japan's asset bubble. While the Accord did lead to the appreciation of the yen and prompted the Bank of Japan to adopt expansionary monetary policies, the evidence presented here indicates that these factors were insufficient to explain the sharp increase in housing prices. The lack of significant treatment effects in the baseline and lagged models, as well as the confirmation from the in-time placebo test, suggest that the Accord's influence on the real estate market was limited. Although the monetary easing following the yen's appreciation provided liquidity, other domestic factors as mentioned by other scholars might have played a more significant role in driving the bubble.

A key factor that may explain the null results is the role of the national government's land policies, which was already supporting speculative investment before the Plaza Accord. Land policies under PM Nakasone's administration encouraged urban redevelopment and contributed

to an early rise in land prices, particularly in commercial districts like Tokyo's Chiyoda, Chuo, and Minato wards (Hoshino 2017). This early surge in land prices, combined with a favorable tax environment that incentivized land investment, suggests that domestic factors might have been setting the stage for a real estate bubble well before the Accord was implemented.

In addition to these policy dynamics, Japan's financial deregulation in the 1980s allowed banks to expand lending into real estate. Fukao (2003) points out that deregulation loosened restrictions on bank lending and corporate bond issuance, creating incentives for banks to shift from traditional loans to more speculative lending practices. Furthermore, tax policies such as low property taxes and deductions for interest payments on real estate loans created additional incentives for land purchases (Okina et al. 2001). Further research leaves open the question of whether the combination of government land policy, financial deregulation, and low interest rates contributed to the bubble's formation. Although the Plaza Accord played a role in yen appreciation, by 1987 the focus of Japan's exchange rate policy had shifted toward stabilizing the dollar, as noted by Frankel (2016). This suggests that the Accord's impact on the real estate market may have been limited during the key bubble years of 1987-1989.

In conclusion, the null results from this study align with research that attributes Japan's real estate bubble possible non-Plaza Accord mechanisms. While the Accord may have contributed to broader economic conditions, it does not appear to have been a decisive factor in the housing price surge.

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Tables and Figures

Table 1 Donor Pool

Donor Pool
Australia
Belgium
Canada
Denmark
Finland
Ireland
Israel
Italy
Korea
Netherlands
Norway
New Zealand
Portugal
Spain
Sweden
Switzerland

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Real Housing Price Index	468	71.97135	30.32386	23.36451	181.1616
Log of GDP	468	9.36736	0.7956454	6.425608	10.82205
Log of Urban Population	468	16.04436	1.036404	14.3524	18.41829
Imports (% of GDP)	468	31.62067	13.20721	6.809425	80.5651
Exports (% of GDP)	468	32.02877	14.40395	8.81647	94.38946
Gross domestic savings (% of GDP)	468	25.50915	5.618062	10.57965	41.20492
Inflation, consumer prices (annual %)	468	10.01173	25.65586	-0.6912105	373.2157

Table 3 Donor Weights and RMSPE

Donors	Weights	RMSPE
Switzerland	70.40%	4.85
South Korea	25.40%	
Italy	4.20%	

Table 4 Predictor Balance

Variable	Treated	Synthetic
Log of GDP	9.029795	9.004961
Log of Urban Population	18.29788	15.83278
Imports (% of GDP)	11.89765	38.65312
Exports (% of GDP)	12.57148	39.03867
Gross Domestic Savings (% of GDP)	34.50212	30.45743
Inflation, consumer prices (annual %)	5.677167	6.949157
Real Housing Price Index (1979)	89.70434	90.36987
Real Housing Price Index (1981)	107.4175	108.5925

Table 5 Donor Weights and RMSPE

Donors	Weights	RMSPE
Switzerland	60.30%	4.84
South Korea	27.40%	
Italy	8.10%	
Portugal	4.20%	

Table 6 Predictor Balance

Variable	Treated	Synthetic
Real Housing Price Index(1975)	99.5254	91.19507
Real Housing Price Index(1976)	92.54565	89.10567
Real Housing Price Index(1977)	89.70434	90.85637
Real Housing Price Index(1978)	90.26114	94.44051
Real Housing Price Index(1979)	94.74103	101.8483
Real Housing Price Index(1980)	100.0876	104.5666
Real Housing Price Index(1981)	107.4175	108.6841
Real Housing Price Index(1982)	113.3377	106.9311
Real Housing Price Index(1983)	116.8738	114.3342
Real Housing Price Index(1984)	118.8022	115.0184

Table 7 Covariate Weight Matrix

Real Housing Price Index(1981)	Real Housing Price Index(1979)	Inflation, consumer prices (annual %)	Gross domestic savings (% of GDP)	Exports (% of GDP)	Imports (% of GDP)	Log of Urban Population	Log of GDP	
0	0	0	0	0	0	0	.0004771	Log of GDP
0	0	0	0	0	0	0.0200016		Log of Urban Population
0	0	0	0	0	0.0006442			Imports (% of GDP)
0	0	0	0	0.0030844				Exports (% of GDP)
0	0	0	0.0864879					Gross domestic savings (% of GDP)
0	0	0.7298059						Inflation, consumer prices (annual %)
0	0.0851719							Real Housing Price Index(1979)
0.074327								Real Housing Price Index(1981)

Table 8

Year	Year-on-Year M2 Change (%)
1980-1981	10.44
1981-1982	7.83
1982-1983	7.52
1983-1984	7.75
1984-1985	9.3
1985-1986	8.25
1986-1987	11.6
1987-1988	10.55
1988-1989	10.74
1989-1990	8.63

Figure 1 Synthetic Control with Covariates

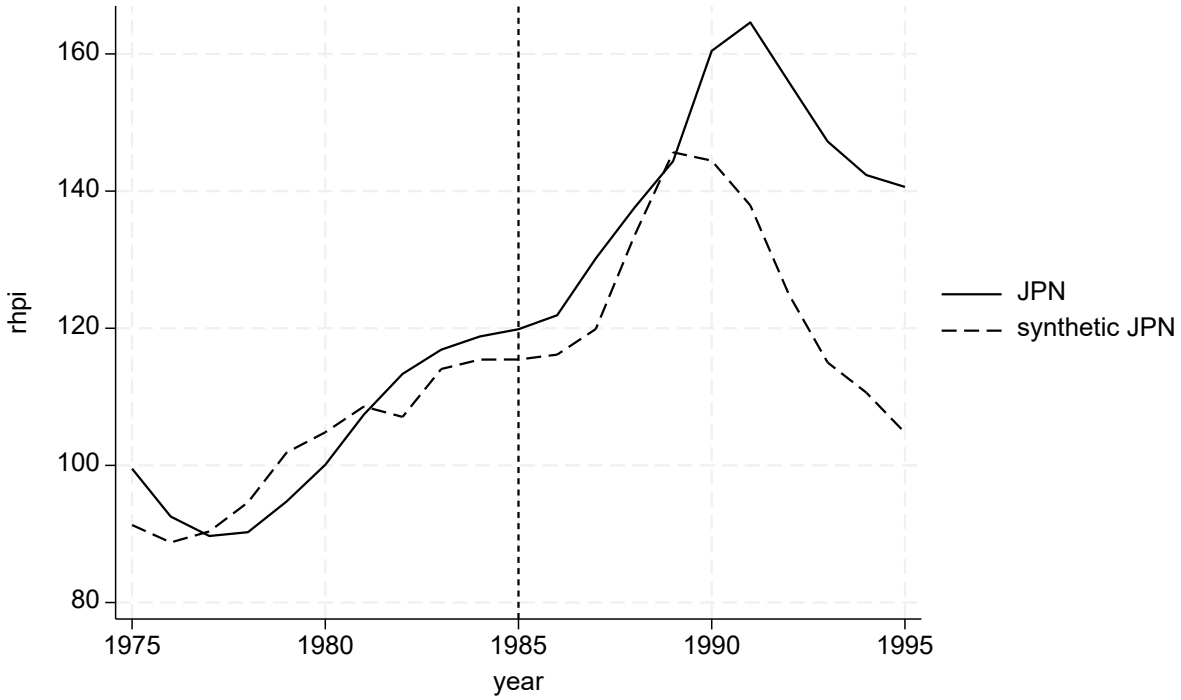

Figure 2 P-values and Treatment Effect for Figure 1

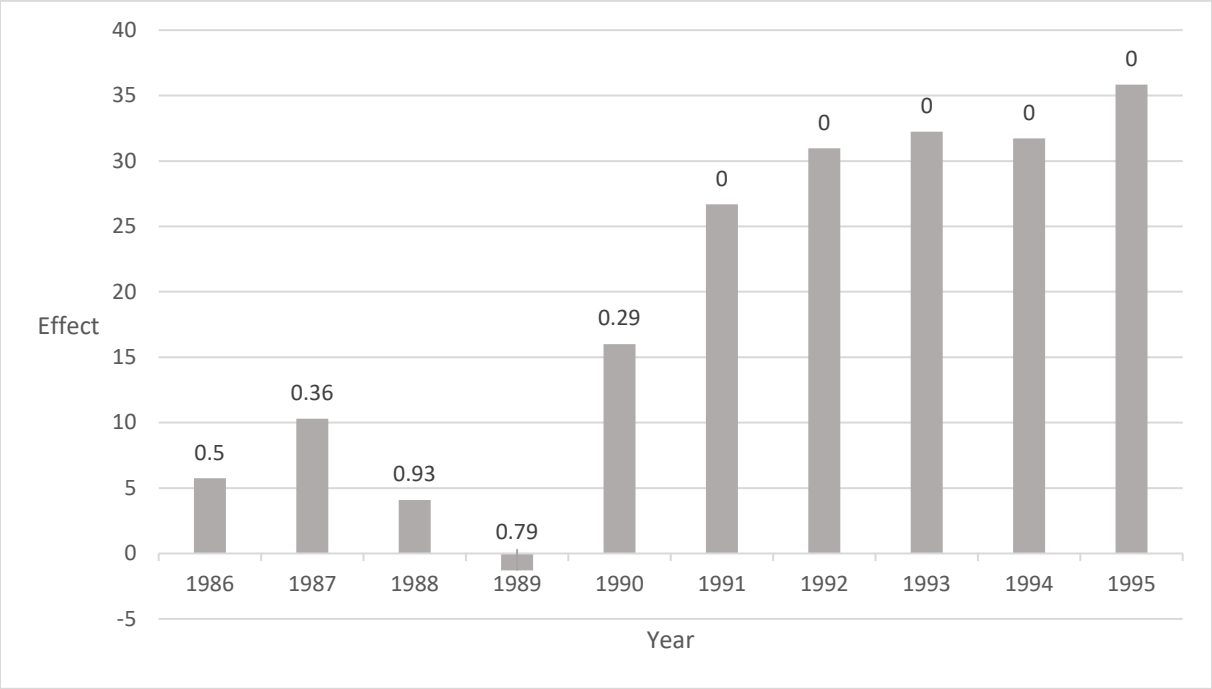

Figure 3 Permutation Tests

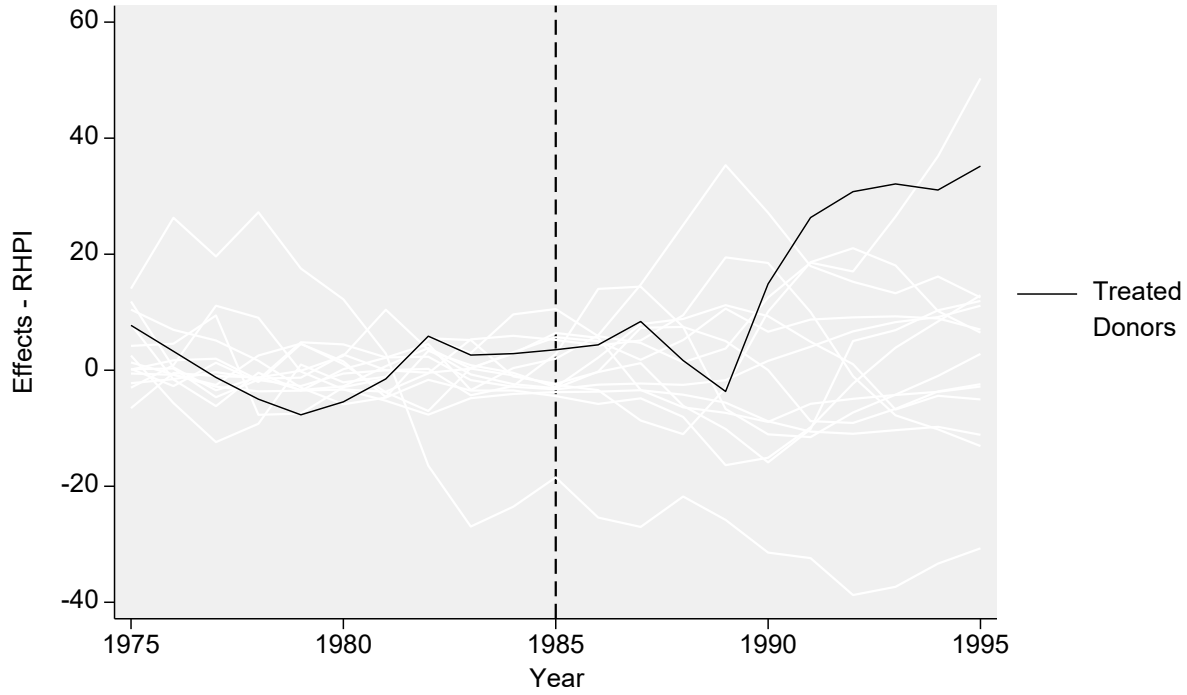

Figure 4 Synthetic Control with Only Pre-Treatment Outcomes

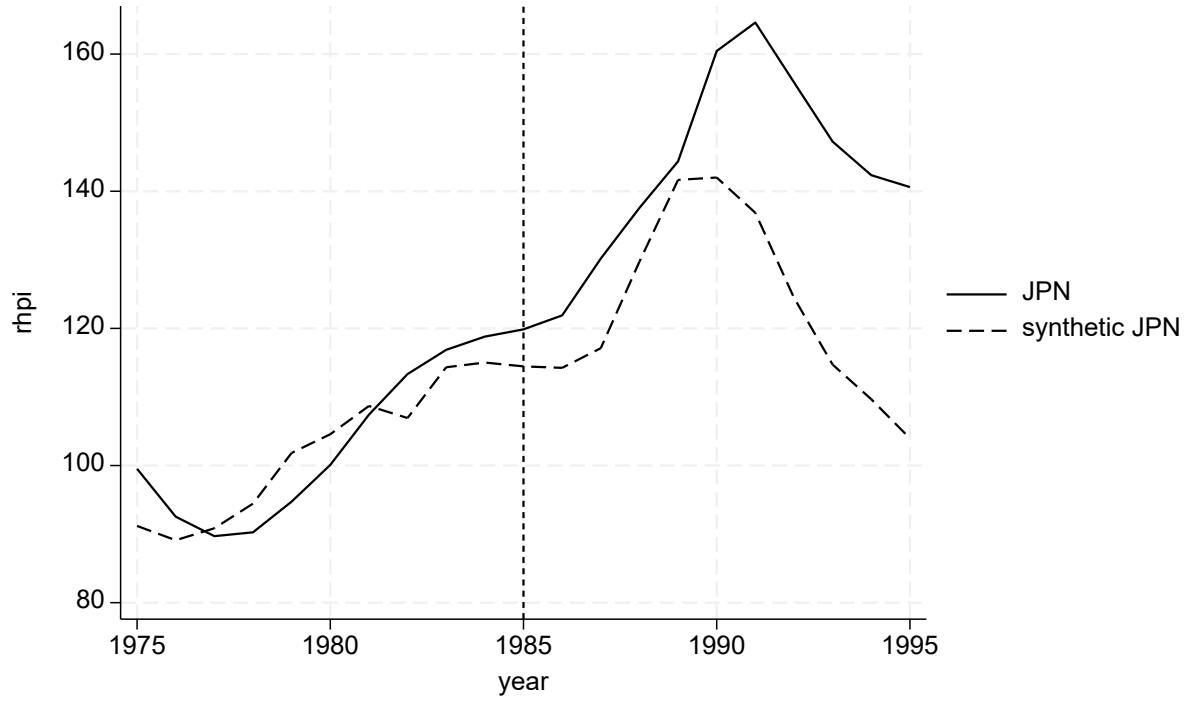

Figure 5 P-values and Treatment Effects for Figure 4

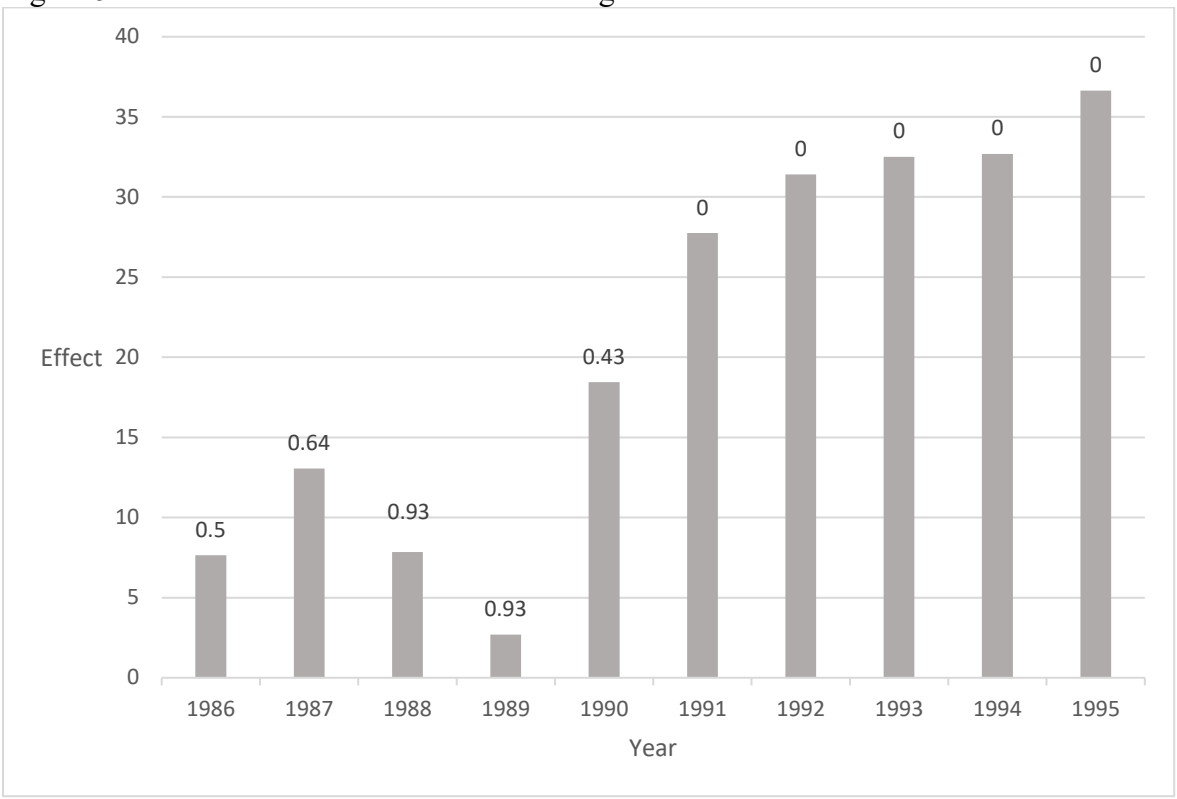

Figure 6 In Time Placebo

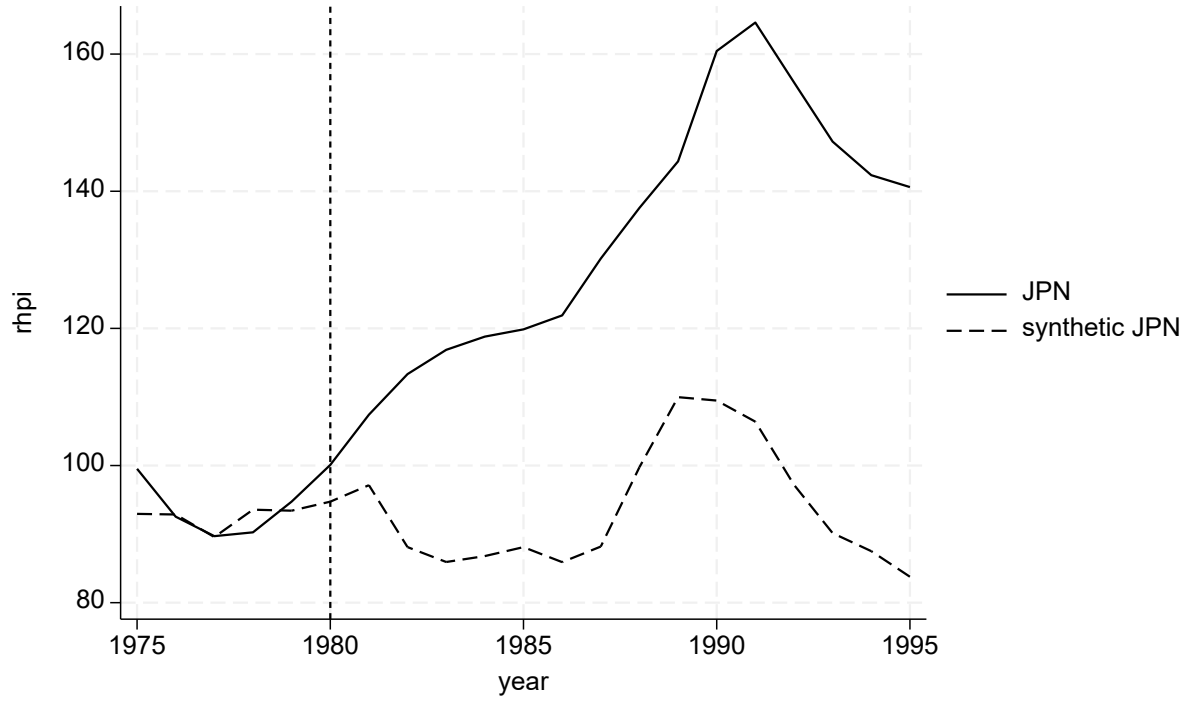

Figure 7

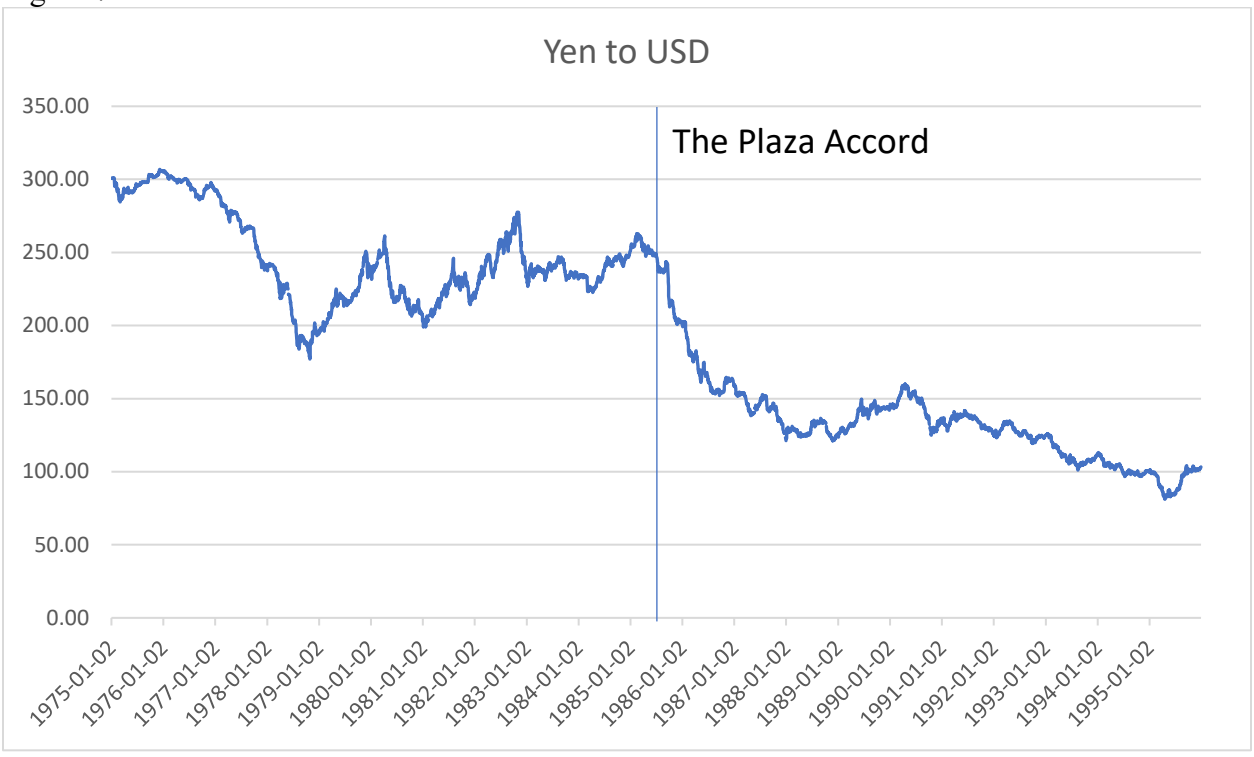

Figure 8

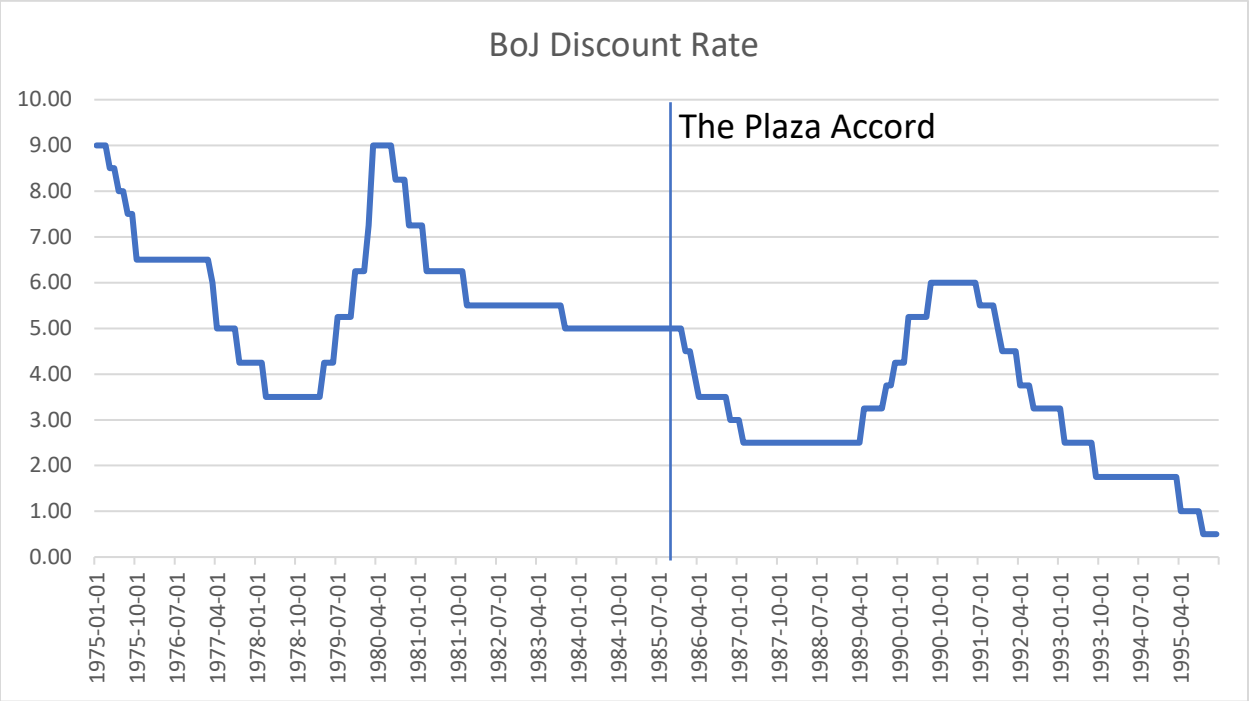

Figure 9

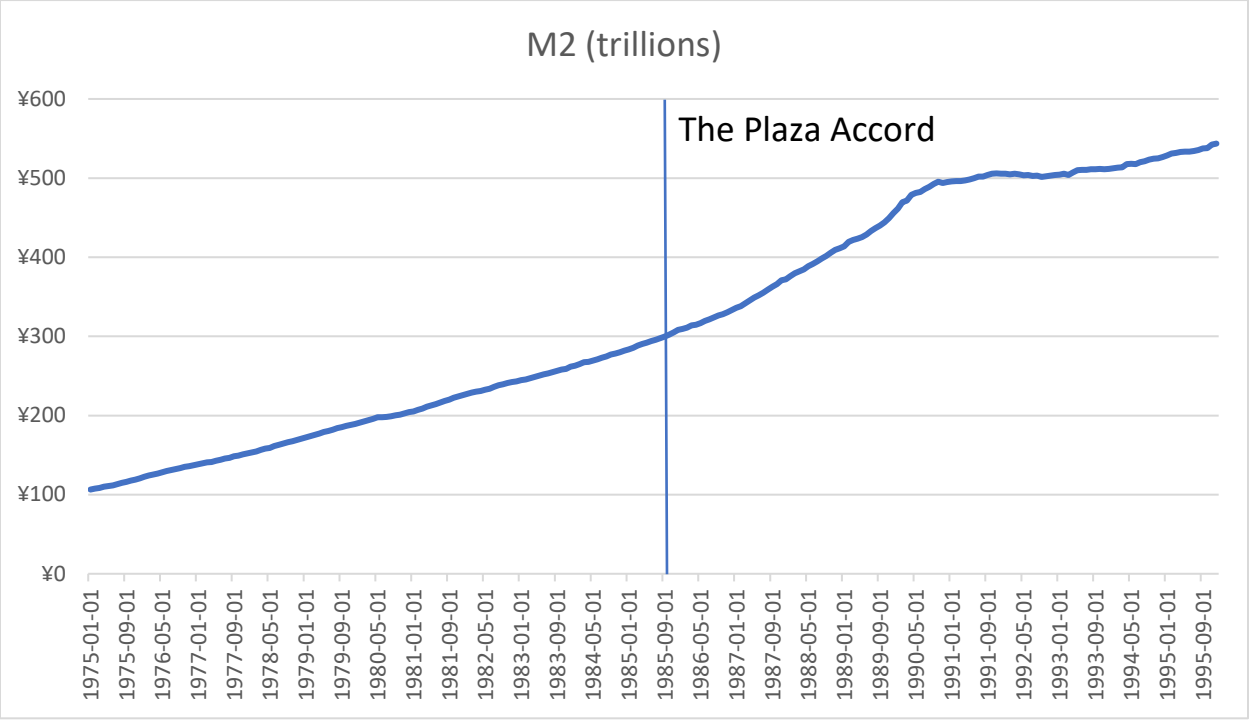

Figure 10 US Intervention in Market Transactions in Other Currencies (Millions of USD)