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ABSTRACT

The global economy has been buffeted by several unprecedented economic events during the past 35 years. We survey the impact of these events on Israel's development, institutions, and economic policies. Israel had a remarkable development during this time, from a low income high-inflation developing economy in the 1970s, to a medium to high income stable- inflation advanced economy in the 2000s, while increasingly integrated into the world economy. The extraordinary events surveyed include:(1) The collapse of the Soviet Union and the massive immigration to Israel which followed; (2) The Great Moderation in inflation and employment fluctuations in the advanced economies; (3) The 2008 global financial crisis, epi-centered in the US, and the contagion of the financial crisis to Europe; and (4) The rise of East Asia high-growth economies.

Moderating spillovers from the advanced economies during the Great Moderation, the global information technology revolution, the influx of skilled immigrants from the former Soviet Union, the gradual buildup of robust and well-regulated financial institutions over decades after the hyper-inflation crisis, and the deep and extensive integration into the global economy, all provided the Israeli economy with an entry "ticket" to the OECD; the 35-member group of the world advanced economies. It came, however at a cost of rising income inequality.

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"The study of economics does not seem to require any specialized gifts of an unusually high order. Is it not, intellectually regarded, a very easy subject compared with the higher branches of philosophy or pure science? An easy subject at which few excel! The paradox finds its explanation, perhaps, in that the master-economist must possess a rare combination of gifts. He must be mathematician, historian, statesman, philosopher—in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must lie entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near to earth as a politician." (Keynes 1924: 321-322)

Introduction

Israel had a remarkable development, emerging from a low-income high-inflation developing economy in the 1970s, to a medium to high income advanced economy in the 2000s, while increasingly integrated in trade and finance into the world economy. The global economy itself has been buffeted by several unprecedented economic events during the past 35 years.

We survey the impact of these events on Israel's development, institutions, and economic policies. The extraordinary events surveyed include: (1) The collapse of the Soviet Union and the massive immigration to Israel which followed; (2) The Great Moderation in inflation and employment fluctuations in the advanced economies; (3) The 2008 global financial crisis epi-centered in the US and the contagion of the financial crisis to Europe; and (4) The rise of East Asia high-growth economies.

Immigration has been long known to have far reaching economic and social consequences. These include the labor market, international trade, economic growth, the social and political structure, etc. The exodus of Soviet Jews to Israel in the 1990s, especially its impacts on income inequality and the political balance of power is analyzed in Section I. We describe the extraordinary experience of Israel which within a short time period in the early 1990s received three quarter of

a million migrants from the Former Soviet Union (FSU). This wave was distinctive for its large skilled cohort which raised disposable income inequality without increasing market income inequality. That is, the welfare state took a sharp regressive turn. These events are surveyed in Section 1.

The Great Moderation that occurred from 1985 to 2007 during an era when the Federal Reserve and other advanced economies' central banks provided a broadly stable macroeconomic environment to facilitate rational private sector choice. In those 22 years, the rate of inflation in advanced economies rose above 5 percent for only 3 years and fell below 2 percent for only 2 years. GDP growth was relatively stable, and unemployment was low. Inflation substantially declined across the globe. The average annual inflation rate among developing countries was 41 percent in the early 1980s, and declined to 13 percent toward the end of the 1990s. Global inflation in the 1990s dropped from 30 percent a year to about 4 percent a year. Globalization swept emerging markets in Latin America, European transition economies, during this period. Restrictions on market transactions in emerging markets fell from 78 percent in the 1970s to 58 percent in the 2000s. Israel avidly globalized during this period, and its inflation decelerated from three digit rates in the 1980s to the low single digit range as its financial sector became more and more globally integrated (Section 2).

Traditional macroeconomic models had not adequately captured the real world business cycles: small recessions that occur in the interval between deep and long recessions; because the macroeconomic models totally ignored the role of financial intermediaries. These financial institutions were treated simply like a neutral conduit between savers and investors; not as a source of crisis by themselves. This deficiency is being remedied, but uncertainties remain. These are crucial for comprehending the 2008 global financial crisis and its aftermath. Until they are resolved, Israel and the global economy may generally have difficulty coping with the Great Recession, the Eurozone crisis and perhaps Secular Stagnation in some of the advanced economies, especially in Europe.

Section 3 analyzes the Israel's superior post-crisis performance to pinpoint the sources of its success, the role played by building its financial and monetary institutions; similarities with the Asian emerging economies are emphasized.

Section 4 builds on this investigation by considering parallel behavior of other success stories, particularly China, Vietnam, India and Indonesia, after they abandoned autarky in favor of export led growth in the mid-1980s. Suddenly, and with little warning, more than a third of the world's population joined the post-war globalization parade powerfully effecting global demand everywhere, including Israel. Israel has significantly pivoted its trade to the emerging East Asia markets.

Section 5 looks back at the saga of Israel's high-inflation, the conquest of the hyper-inflation, and the emergence of more stabilizing monetary and fiscal policies, as well as the well-regulated financial sector.

1. Soviet-Jew Exodus

1.1. Introduction

Immigration has been long known to have far reaching economic and social consequences. These include the labor market, international trade, economic growth, the social and political structure, etc. (see, e.g., Lucas (2014) for a recent treatise). The exodus of Soviet Jews to Israel in the 1990s, especially its impacts on income inequality and the political balance of power vivifies Lucas's findings.[1] Israel is known for the unique ways it absorbs immigrants who tend to arrive in waves. Each one has its unique origin, distribution of skills, and often socio-economic characteristics. Thus, the exodus of Soviet Jews in the 1990s adds useful insights into this ongoing experiment.

The importance of the Soviet Jewish exodus is best appreciated in historical perspective. Immigration to the pre-state Palestine and to the state of Israel came in waves from the late 19th century onwards.[2] During the pre-state era (prior to 1948), immigration was at times controlled by the British rulers.[3] But since the birth of the state in 1948, immigration was free, and even encouraged, under the

[1] Benhabib and Jovanovich (2012) consider world-welfare perspective. Our analysis focuses on an individual state.
[2] See Razin and Sadka (1993)
[3] After World War One the League of Nations granted Great Britain a mandate over the whole of Palestine. It ended in 1948.

umbrella of the “Law of Return”. Table 1.1 suggests that immigration at times, especially in the nascent statehood and in the last wave from the Former Soviet Union (FSU) constituted about 20% of the established population.

Table 1.1: Immigration, 1922-2001

Period	Immigrants as a Percentage of Established Population	Annual Percentage Growth Rate of Population
1922-32	8.2	8.0
1932-47	6.4	8.4
1947-50	19.8	21.9
1950-51	13.2	20.0
1951-64	2.2	4.0
1964-72	1.3	3.0
1972-82	0.9	2.1
1982-89	0.4	1.8
1989-2001	19.0	2.9

Source: Ben-Porath (1985) for the years 1922-1982, Central Bureau of Statistics (1992), Bank of Israel (1991b) for the years 1982-2001.

1.2. Recent Wave of Immigration: The Trigger

The recent wave of Soviet Jews was triggered by the disunion of the Soviet Union and the destruction of communism in the USSR 1987-1991 (Table 1.2).

Table 1.2: Emigration of Jews and their family members from the former USSR, thousands

Year	Total (000s)	Israel	USA	Germany	Jews (Halakha) in Israel
1970–1988	291	165	126	0	NA
1989	72	12.9	56	0.6	NA
1990	205	185.2	6.5	8.5	96%
1991	195	147.8	35.2	8	91%
1992	123	65.1	45.9	4	84%
1993	127	66.1	35.9	16.6	83%
1994	116	68.1	32.9	8.8	77%
1995	114	64.8	21.7	15.2	72%
1996	106	59	19.5	16	68%
1997	99	54.6	14.5	19.4	60%
1998	83	46	7.4	17.8	54%
1999	99	66.8	6.3	18.2	50%
2000	79	50.8	5.9	16.5	47%
2001	60	33.6	4.1	16.7	44%
2002	44	18.5	2.5	19.3	43%
2003	32	12.4	1.6	15.4	43%
2004	25	10.1	1.1	11.2	NA
2005	18	9.4	0.9	6	NA
2006	10	7.5	0.6	1.1	42%
1989–2006	1,607	979	325	219	NA
1970–2006	1,898	1,144	451	219	NA

Source: http://demoscope.ru/weekly/2012/0497/demoscope497.pdf

This was surprising to the extent that Mikhail Gorbachev, President of the Union of Soviet Socialist Republics inaugurated a liberalization campaign in the political ("demokratizatsiya"), economic ("perestroika"), social and international spheres ("novoe myshlenie") that expanded opportunities for Soviet Jews to increase their welfare. However, the prospect of brighter tomorrows was countervailed by mounting political, social and economic turmoil which increased Jewish national consciousness, raised the risk of civil war, created the specter of a military *coup d'etat*, threatened economic collapse and catastrophic excess deaths. None of these fears were unfounded. All came to pass, and Jews who chose to flee were wise to do so.

These dangers were downplayed in the Western press and scholarly literature, which lionized Gorbachev for his progressive policies. The Soviet President advocated ending the Cold War, reducing defense spending, expanding arms control, establishing democracy, tolerating the secession of disgruntled republics from the USSR and satellite states from Russia's sphere of influence, creating leasehold and some freehold property rights, and encouraging markets,

entrepreneurship and joint ventures with foreign companies. Gorbachev described these initiatives collectively as "Russia returning to its common European home".[4]

His initial reforms were timid.[5] The President called for accelerated economic growth ("uskoreniye"), and authorized the creation of cooperative restaurants and other small private consumer businesses. Facilities were leased ("arenda") from the state and cooperatives were restricted to a maximum of five participants. Peasants were permitted to sell their goods in urban farmers' markets and joint cooperative ventures were encouraged with foreign companies. All these changes were welcome, beneficial and had little impact on the dominant command - planning controlled state sector.

The first hint that Gorbachev ambitions were being radicalized came in his enterprise reform law of January 1988 which allowed state enterprise managers to use company funds at their discretion instead of complying strictly with central plans ("tekhpromfinplans").[6] Soon thereafter, central plans ceased being obligatory. The stated intention of the enterprise reform law was to give managers more latitude in dealing with day to day operations, but the opportunity to divert funds from operations and investment to personal consumption and round-a-about

[4] Gorbachev (1987).
[5] Rosefielde Hedlund (2009).
[6] CIA (1987).

insider privatization wasn't missed ("kleptostroika"). This raised serious doubts about Gorbachev's competence and the wisdom of his intentions. While a gradual transition from command communism to some ill-defined mixed market system was considered progressive in elite circles, most opposed a helter-skelter approach. Specialists and the public began worrying whether Gorbachev had a coherent transition program or was just a "harebrained" schemer like Nikita Khrushchev.[7] These apprehensions were confirmed when the economy ceased growing in 1989 and then plummeted nearly 10 percent in 1990 as enterprise managers focused on privatizing state assets to themselves ("spontaneous privatization"), liquidating them and transferring balances abroad instead of dedicating them to current operations.[8] Inter-industrial supplies, the backbone of modern economies were shattered because managers ignored their contractual obligations to intermediate input users.

This was shock therapy in action without Jeffrey Sachs's conditionality.[9] In theory Soviet managers who had no experience designing and marketing products to satisfy consumer demand were expected to transform themselves into efficient competitors under duress. But they could not do it. The reality was a hyper-

[7] Breslauer (1982).
[8] Khoziastvo (1990).
[9] Sachs (2012).

depression that caused GDP to fall between 37 and 50 percent between 1989 and 1998,[10] and eventually caused 3.4 million excess deaths.[11] Full economic recovery wasn't achieved until 2006.

The primary driver of Jewish exodus from Russia 1990-1996 was the Soviet Union's and subsequently Russia's economic collapse, often dubbed "katastroika". The Jewish community sensed the pain, anticipated the danger and fled for this compelling reason, but also due to the twin threats of a military *coup d'tat* and civil war. The first storm warning came in a series of protests by East Germans, which led to free elections on 18 March 1990, and to the negotiations between the German Democratic Republic and the Free Republic of Germany that culminated in a Unification Treaty. Gorbachev could have, but didn't intervene.[12] The Baltic States (Lithuania, Estonia and Latvia) sensing the mood, asserted their "historical" independence. Unlike East Germany, they were official Soviet Republics. Their secessionist drives could have been construed as *casus belli* by the Kremlin, and were interpreted as such by the "siloviki" (power services), but again Gorbachev acquiesced without *quid pro quo*. Many Russian politicians today consider

[10] Rosefielde and Hedlund (2009).
[11] Rosefielde (2001).
[12] Pfaff (2006).

Gorbachev a traitor and are trying to declare the Baltic secession null and void arguing that he acted illegally.[13]

Politicians in other republics (Russia, Ukraine, and Belarus) then launched their own secessionist drives. Gorbachev countered with a Soviet Union-wide referendum on preserving the federation,[14] but the State Committee on the State of Emergency (GKChP) seeing the handwriting on the wall launched a putsch on August 19, 1991. Gorbachev was placed in forced detention, but ultimately the conspirators yielded, culminating in the dissolution of the Soviet Union on December 25, 1991. As a consequence, Russia lost approximately a third of its population and territory. All of these events were given an optimistic spin by Western governments, the World Bank and the IMF, but Jewish emigres clearly were unimpressed, preferring to be safe rather than sorry. Vladimir Putin's annexation of Crimea on March 18, 2014 illustrates the ongoing danger.

Finally, sight should not be lost of the demonstration effect. The Soviet Union's crumbling sphere of influence in Central Europe and East Germany, together with the successful secession of the Baltic States alerted the Russian

[13] Tamkin (2015).
[14] Rosefielde and Dallago (2016).

Jewish community to the wisdom of carpe diem. A window of opportunity had opened, and Jewish emigres of the 1990s chose to seize the day.

The "Aliyah"

The professional, social, attitudinal and behavioral characteristics of the 1990s Jewish exodus cohort proved to be distinctive. Immigrants came mostly from urban areas, with fairly advanced education systems. Their skill (education) composition was skewed towards high education levels. This skew was reflected in their relatively higher labor income (see Table 1.3). Their share in the population was sizable - 14.5%. Their average family size (2.32 standard persons) was lower than the national average (2.64 standard persons). This indicates fewer dependents. Most important was their higher education level and consequently their higher labor income. The average number of schooling years of the new immigrants was 14.0, compared to the national average of only 13.3.

Table 1.3: The Skill, Age and Income of Immigrants from the FSU and the National Average, 1990-2011

	Immigrants from the FSU	National Average[15]
Share in Total Population (%)	14.5	100
Household Size (numbers of standard persons)	2.32	2.74
Schooling Years Of Head of Household (no.)	14	13.3
Head of household with a bachelor degree (%)	41.1	29.5
gross monthly labor income per standard person (2011 NIS)	4,351	4,139

Source: Eilam (2014)

Even more striking was the percentage of heads of the households with bachelor degrees: 41.1% among the new immigrants, compared to a national average of just 29.5%. The higher education level and the lower family size can presumably explain the income gap: the average labor income per standard person of the new immigrants was NIS 4,351, compared to a national average of only NIS

[15] Including immigrants

4,139. Noteworthy, this gap existed even though the new immigrants had lower work seniority than the established population.

The educational achievement figures of the immigrants from the FSU are impressive compared to the EU-15. Relying on data from the International Organization for Migration (IOM) and the OECD, Razin and Sadka (2014) report that only 18% of the stock of immigrants in the EU-15 in 1990 and 24% in 2000 had tertiary education.

1.3. Migration and Wages

Cohen and Hsieh (2000) show that average effective wages of native Israelis fell and the return to capital increased during the height of the influx in 1990 and 1991. By 1997 however, both average wages and the return to capital had returned to pre-immigration levels due to an investment boom induced by the initial increase in the return to capital. As predicted by the standard intertemporal model of the current account[16], the investment boom was largely financed by external borrowing. Furthermore, despite the high educational levels of the Russian immigrants, the Russian influx did not lower the skill-premia of native Israelis. They explain this effect by the rise in Total Factor Productivity during the 1990s

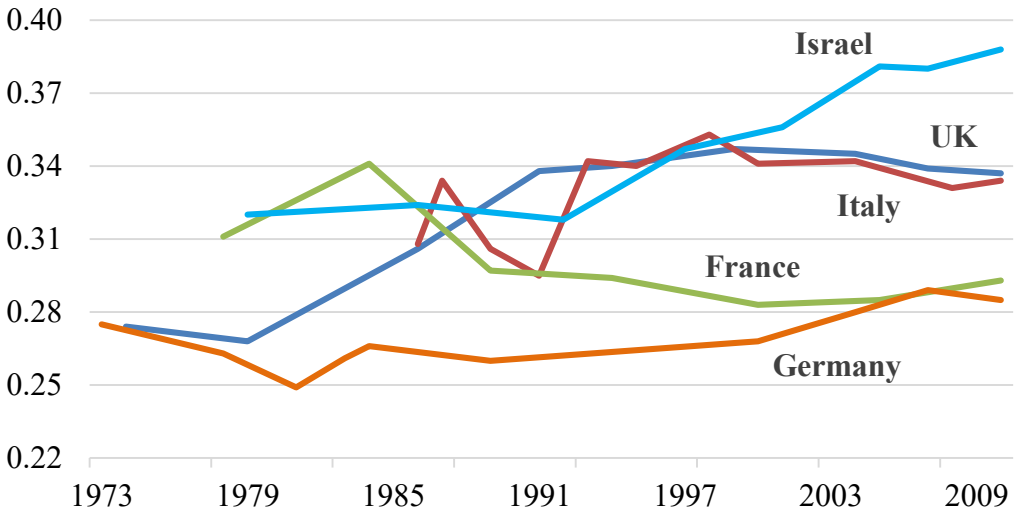
[16] See Razin (1995).

relative to stunningly low productivity increase through much of the 1970s and 1980s.

1.4. Migration and Income Inequality

Countries receiving immigrants are typically welfare states, Israel included. Putting it differently, inequality is significantly lower in a typical welfare state disposable income than non-welfare state market economies. Transfers and the taxes of a typical welfare state serve to reduce disposable income inequality. Israel is not an outlier in the OECD countries with respect to the market-driven (pre-tax-cum-transfer) income inequality. However, Figure 1.1 indicates that disposable income inequality in Israel, which was roughly stable until the beginning of the 1990s, rose sharply thereafter, even though no such change occurs with respect to the market-generated inequality.

Figure 1.1: Disposable Income Inequality* in Israel and Several EU-15 Countries, 1973-2013

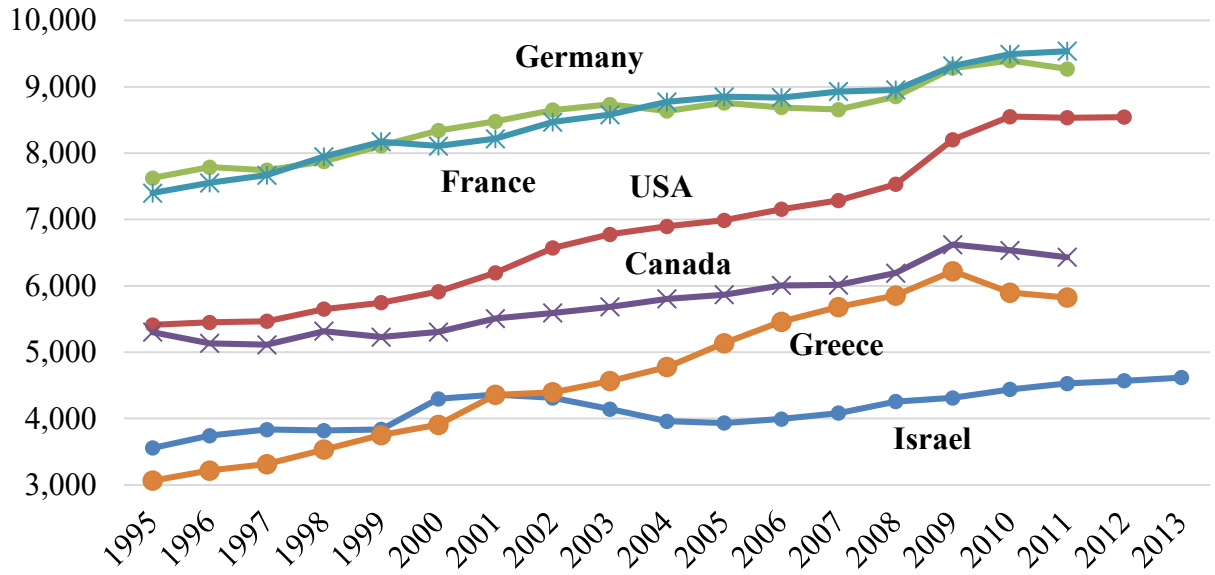


*Gini Coefficient
Source: Dan Ben-David (2015)

Figure 1.2 highlights the low ranking of Israel in terms of its provision of social services.[17]

[17] Social expenditures temporarily increased during the migration wave, thanks to one-shot absorption expenditures on new immigrants. They declined at the beginning of the 2000s.

Figure 1.2: Social Expenditures Per Capita, selected countries



Note: Constant 2005 PPPs, in US dollars

Source: OECD library.

The Political-Economy Mechanism

Unique to Israel, the Law of Return not only enabled free immigration but also grants returnees immediate citizenship and consequently voting rights. Nevertheless, an early study by Avner (1975) finds that the voting turnout rate of new immigrants had been markedly lower than that of the established population. This means that immigrants did not fully exercise their voting rights and did not therefore influence the political economy equilibrium in Israel as much as the established population.

A similar migrant low voting turnout pattern is reported also by Messina (2007) and Bird (2011) for Western Europe. However, a later study about voting turnout pattern of new immigrants to Israel in the 2001 elections, conducted by Arian and Shamir (2002) reverse this finding for 2001. The new immigrants in this study are pre-dominantly from the FSU. Arian and Shamir find no marked difference in the voting turnout rates between these new immigrants and the established population. This is indeed a unique feature of the 1989-2001 immigration waves from the FSU. Razin and Sadka (2016) address the issue of how migration can reshape the political balance of power, especially between skilled and unskilled and between native-born and migrants, and consequently to political-economic equilibrium redistribution policy of the welfare state. Razin and Sadka (2016) develop a general equilibrium model which can explain how a supply-side shock of skilled migration can reshape the political-economy balance and the redistributive policies. First, it depresses the incentives for unskilled migrants to flow in, though they are still free to do so. Second, tax-transfer system becomes less progressive. Third, the unskilled native-born may well become better-off, though they lose their political clout which they had before the migration wave.

1.5. Concluding Remarks

The section described a unique experience of Israel which within a short time period in the early 1990s received scores of migrants from the Former Soviet Union (FSU). Its distinctive feature was the migrants' high labor skill. It caused a sharp new upward trend of disposable income inequality but without a parallel change in market income inequality. That is, the welfare state took a sharp regressive turn. This underscores the role played by the post migration political balance which triggered less redistribution.

2. The "Great Moderation" and Israel's Disinflation

The Great Moderation from 1985 to 2007 is the period where the Federal Reserve, and other advanced economies central banks, provided a broadly stable macroeconomic environment to facilitate private sector economic decisions. In those 22 years, the rate of inflation in advanced economies rose above 5 percent for only 3 years and fell below 2 percent for only 2 years. GDP growth was relatively stable, and unemployment was low. During the Great Moderation, inflation around the world fell substantially. The average annual inflation rate among developing countries was 41 percent in the early 1980s and declined to 13 percent toward the end of the 1990s. Global inflation in the 1990s dropped from 30 percent a year to about 4 percent a year.

Concomitantly, a globalization process has swept emerging markets in Latin America, European transition economies, and East Asian emerging economies in the past two decades. The 1992 single-market reform in Europe and the formation of the euro zone were watersheds of globalization. Emerging markets, including China and India, likewise became significantly more open. Wynne and Kersting (2007) note that in the 1970s more than three quarters of industrial countries had restrictions of some sort on international financial transactions. By the 2000s, none did. Likewise, restrictions on these transactions among emerging markets fell from

78 percent in the 1970s to 58 percent in the 2000s.Israel was involved intensively in the globalization process and climbed down from the 1980s three digit and double digit inflation rates.

An important aspect of openness relates to labor flows. International migrants constituted 2.9 percent of the world population in the 2000s, up from 2.1 percent in 1975. In some countries, changes have been more dramatic. In Israel in the 1990s, there was a surge of immigrants of up to 17 percent of the population, and the central bank achieved a sizable decline of inflation. It is possible that the two events are related. In Spain in 1995, the percentages of foreigners in the population and in the labor force were below 1 percent and below 0.5 percent. At the end of 2006, these rates were around 9 percent and 14 percent. The impact of the Spanish immigration boom on the Phillips curve has recently been addressed by Bentolila, Dolaldo, and Jimeno (2007).

2.1. International Transmission Mechanisms

Kenneth Rogoff observes that global inflation declined from 30 percent to 4 percent between 1993 and 2003. [18][19] Rogoff (2003, 2004) conjectures that favorable factors have been helping to drive down global inflation in the past two decades. A hypothesis, which he put forth, is that "globalization—interacting with deregulation and privatization—has played a strong supporting role in the past decade's disinflation." He attributes the moderation primarily to the increasing independence of central banks, and the broad-based move towards having them run by conservative anti-inflation oriented central bankers; similar developments happened also in Israel. The increased competitiveness was a result of the interplay of globalization, deregulation and a decreased role for governments in many economies. Given this diagnosis he foresaw continued disinflation and even deflationary pressures (which came into a stark relief in the Great Recession) arguing that the most important factor supporting world-wide disinflation has been the mutually reinforcing mix of goods market and financial deregulation and globalization, and the consequent significant reduction in monopoly pricing power. These developments increased competitiveness; diminishing the gains a central bank can reap via unanticipated inflation because it reduces the gap between the

[18] The globalization effect has been reinforced by the transition from communism to capitalism in the former Soviet Union. Spontaneous privatizers, including the military industrial complex (vpk) began mass sales of natural resources abroad. The USSR's entire prolonged war strategic mineral reserves were shipped out of Russia's Far East ports to Asia, contributing to a decade long plunge in natural resources prices, setting in motion a broad drop in energy products' inflation.

[19] Kenneth Rogoff's paper was prepared for the Federal Reserve Bank of Kansas City conference on "Monetary Policy and Uncertainty: Adapting to a Changing Economy" Jackson Hole, WY, August 29, 2003.

economy's monopolistically competitive equilibrium and the more socially desirable competitive equilibrium. In addition, both theory and empirics suggest that more competitive economies have more flexible nominal prices, making smaller the Barro-Gordon-type output gain the central bank can achieve by inflating; and making them more ephemeral. Rogoff shows in a very standard, stylized political economy model that it is easier to credibly sustain low inflation in a competitive than in a highly monopolistic economy.

Rogoff's prediction has proven correct.[20] Global inflation moved sideways after 2003, and then fell sharply asymptotically approach zero after 2008, despite massive monetary and credit expansion in the United States and the European Union. The forces behind global disinflation and deflation apparently are more complex than Rogoff supposed but the trend is incontrovertible (given official statistics with goods' quality adjustment biases).

Evidence of the effect of globalization on the Phillips curve is provided by Loungani, Razin, and Yuen (2001), Razin and Loungani (2007), and Clarida (2008). Previously, Romer (1993, 1998) and Lane (1997) showed that inflation and trade liberalization are negatively and significantly correlated among the large (flexible exchange rate) OECD economies.

[20] Yardeni, Johnson and Quintana (2016).

The core mechanism in the New Keynesian paradigm depends on the Phillips Curve; that is, the tradeoff between surprise inflation and the level of economic activity. The reason why the New Keynesian framework is capable of generating such a trade-off between inflation and economic activity is that producer-desired prices (once prices are adjusted) rise with the economy's output, when marginal costs slope upward due to diminishing returns to scale. Furthermore, when the labor supply increases, workers tend to experience increasing marginal disutility of labor efforts. The resulting increased real-wage demands must rise. Increased wage demands put an upward pressure on the marginal cost, and consequently on the producer-desired price setting. The New Keynesian Literature (e.g., Binyamini and Razin (2010) shows how increased volume of trade in goods, greater financial openness, and labor migration affect the trade-off between output and inflation by flattening the Phillips curve. Minimizing utility loss function entails more moderate inflation, akin to the Great Moderation. Bean (2006) succinctly summarizes the effect of globalization on the Phillips curve in the era of globalization:

"One of the most notable developments of the past decade (that is, the 1990s) has been the apparent flattening of the short-run trade-off between inflation and activity. The seventies were characterized by an almost vertical relationship in the United Kingdom, in which attempt to hold unemployment below its natural rate

resulted in rising inflation. In the eighties, the downward sloping relationship reappears, as inflation was squeezed out of the system by the slack of the economy. However, since the early nineties, the relationship looks to have been rather flat. Three factors—increased specialization; the intensification of product market competition; and the impact of that intensified competition and migration on the behavior of wages—should all work to flatten the short-run trade-off between inflation and domestic activity."[21]

Binyamini and Razin (2010) performed an analytical exercise whereby they opened up the economy separately to trade in goods, international borrowing and lending and migration. In every successive round of the opening up of the economy, globalization contributes to flatten the aggregate supply curve. The intuition is that when an economy opens up to trade in goods, it tends to specialize in production but to diversify in consumption. This means the number of domestically produced goods, is less than the number of domestically consumed goods. Consequently, the commodity composition of the consumption and output baskets, which are identical if the trade account is closed, are different when trade

[21] Similarly, Mishkin (2007) writes about the U.S. inflation-output trade-off: "The finding that inflation is less responsive to the unemployment gap, suggests that fluctuations in resource utilization will have smaller implications for inflation than used to be the case. From the point of view of policy makers, this development is a two-edged sword: On the plus side, it implies that an overheating economy will tend to generate a smaller increase in inflation. On the negative side, however, a flatter Phillips curve also implies that a given increase in inflation will be more costly to wring out of the system."

in goods is possible. As a result, the correlation between fluctuations in output and in consumption (which is equal to unity in the case of a closed trade account) is less than unity if the economy is opened to international trade in goods.

When the capital account is open, then the correlation between fluctuations in consumption and domestic output is further weakened, this is because with open capital accounts the representative household can smooth consumption through international borrowing and lending and thereby separate current consumption from current output. The inflation effects of shocks to the marginal cost are therefore reduced, because the fluctuations in labor supply are also smoothed, as a consequence of the consumption smoothing.

When the labor market is internationally closed to outward-migration, wage demands faced by domestic producers are upward sloping, both under in-migration and under a completely closed labor market. However, when the labor market is open to in-migration, domestic producers face an expanded labor supply: additional to the skilled native born labor supply (with upward sloping wage demand), they also face a complementary unskilled foreign labor supply (with exogenously determined wage demand). That means that in-migration acts on the Phillips Curve essentially like a domestic productivity shock.

There has been some evidence of greater restraints on domestic prices and wage growth in sectors more exposed to international competition, such as textiles and electronics. Chen, Imbs, and Scott (2004) analyzed disaggregated data for EU manufacturing over the period 1988–2000. They find that increased openness lowers prices by reducing markups and by raising productivity. In response to an increase in openness, markups show a steep short-run decline, which partly reverses later, while productivity rises in a manner that increases over time. If globalization reduces the markup, our model predicts that this effect, by itself, leads to a more forceful anti-inflation policy and lessens the attention given by the policy maker to the fluctuations in economic activity. One can conjecture that more frequent price updating steepens the trade-off between inflation and activity; however, to our knowledge, neither theory nor empirical evidence exists in support of any systematic relationship between globalization and frequency of price updating. Notably, Gopinath and Rigobon (2007) report that the time frequency of price adjustment of U.S. imported goods trended downward, on average, during the Great Moderation. Borio and Filardo (2007) present cross-country evidence in support of their contention that global factors have recently become empirically more relevant for domestic inflation determination. [22]

[22] See Binyamini and Razin (2010). See also Gali (2008) for a comprehensive treatise of the open-economy New Keynesian model. Borio and Filardo (2007) present cross-country evidence in support of their contention that global

2.2. Inflation Convergence

There are several countries, including Israel that went through hyperinflation crisis in some stage of their development. Following the 1977 change of guards at the government level (the political "Ha'Mahapach") in Israel, the newly elected "Likkud" government abruptly eased its control over the economy. In particular, capital controls were largely lifted, initially bringing in short-term capital, followed later by a reversal when the economy faltered. At the same time, a populist economic policy led to high budget deficits and big wage increases. The absence of constraining rules on actions of the central bank rendered it strongly accommodating the treasury in its expansionary monetary policy. With improper bank regulation, ("Visut Menayot") banks were on the verge of collapsing. All these led to a hyperinflation, which climaxed in mid-1985. Following the hyper-inflation crisis in the early 1980s under the populistic "Likkud" government, a major political restructuring in Israel toward the political center enabled a unity government ("Likkud" plus "Avoda") to

factors have recently become empirically more relevant for domestic inflation determination. But Ihrig et al. (2007) have shown that their result is very specific to the econometric method used. Based on cross-country analysis, Badinger (2007) finds that globalization is also correlated with more aggressive policy toward inflation. Tetlow and Ironside (2007), although not dealing with globalization, find that for the United States, the slope of the Phillips curve has—largely and continuously—lessened during recent years. However, Ihrig et al. (2007) have shown that results are very specific to the econometric method used. Based on cross-country analysis, Badinger (2007) finds that globalization is also correlated with more aggressive policy toward inflation. Tetlow and Ironside (2007), although not dealing with globalization, find that for the United States, the slope of the Phillips curve has—largely and continuously—lessened during recent years.

stabilize the economy. Indeed, some key measures, requiring a political consensus were taken and new legislation helped to immunize, in part the economy from similar extreme crisis features. In particular, a new legislation ("khok Hahesderim") allowed the government to exercise more tight control over the budget. A new law forbade the Central Bank to monetize the budget deficit ("Khok Iee Hadpassa"). A Tri-Party agreement between the government, the Federation of Labor ("Histadrut") and the association of private sector employers dampened the wage-price dynamics and enabled a sharp nominal devaluation that ended in a real devaluation. Because the exchange rate change had weak immediate repercussions onto wages and prices. The macroeconomic changes, brought about by the stabilization program, have been lasted until these very days. The Hyperinflation episode has not reoccurred.[23]

2.1 Disinflation aided by Globalization

(i) Convergence of inflation rates

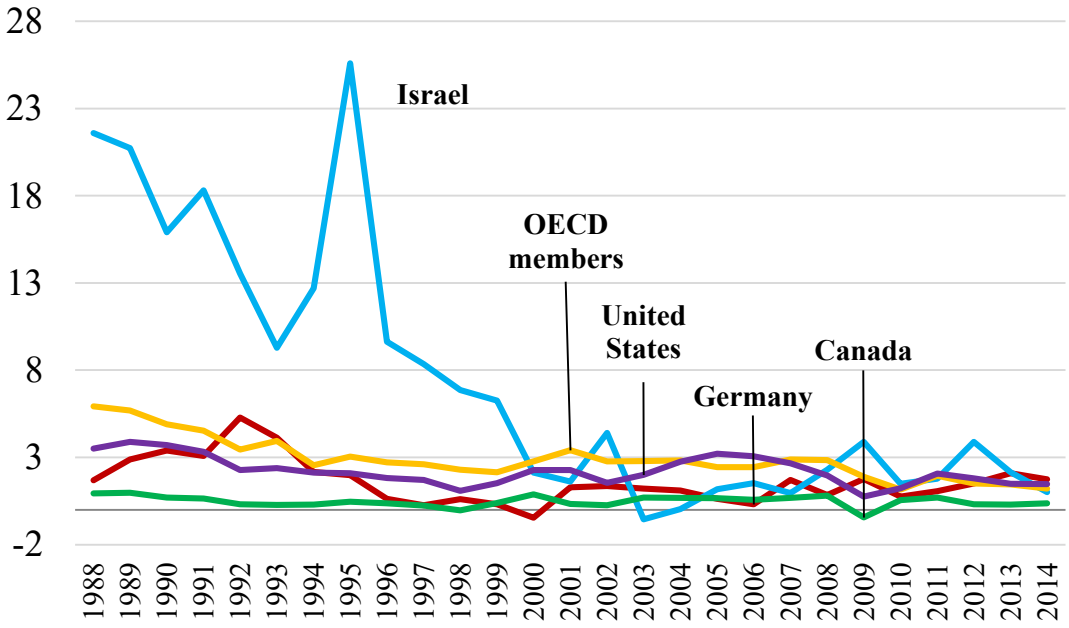
Globalization—interacting with deregulation and privatization—has played a strong supporting role in Israel's disinflation. The moderation is due to a large

[23] Oil consuming developed economies, who were hit by the oil price shock like Israel, however were able to crush the nascent inflation pressures. Other developing countries experienced similar hyperinflation episodes. Many Latin American countries, particularly Argentine in 2002, went through similar processes. The 1997 Asian crisis had also similar features, except that a more disciplined fiscal policy was maintained before the crisis erupted.

extent to the increasing independence of the Bank of Israel, conducting effective anti-inflation policies in the presence of worldwide dis-inflation.

Figure 2.1 shows the convergence of Israel inflation rate to US, Germany and OECD rates. Inflation fall started after the 1985 inflation stabilization policy but converged to the low one digit rates of advanced economies in the 1990s.[24]

Figure 2.1: Inflation Rates (Annual GDP Deflator, percentage)



Source: The World Bank

(ii) International Financial Integration

[24] Leiderman (1999) comprehensively analyze Israel's dis-inflation with a focus on monetary policies related to inflation and disinflation in Israel.

Full international financial integration requires that in the long-run (when prices adjust to various shocks and markets clear) the following arbitrage equation.

$$1 + r_t^{US} = \left(1 + r_t^i\right) \frac{q_{i/US,t+1}}{q_{i/US,t}},$$

Where i stands for Israel, Canada, Germany and the United Kingdom; and q stands for the real exchange rate *vis a vis* the US dollar[25]:

$$q_{i/US,t}^t = E_{i/US,t} \frac{P_{US,t}}{P_{i,t}},$$

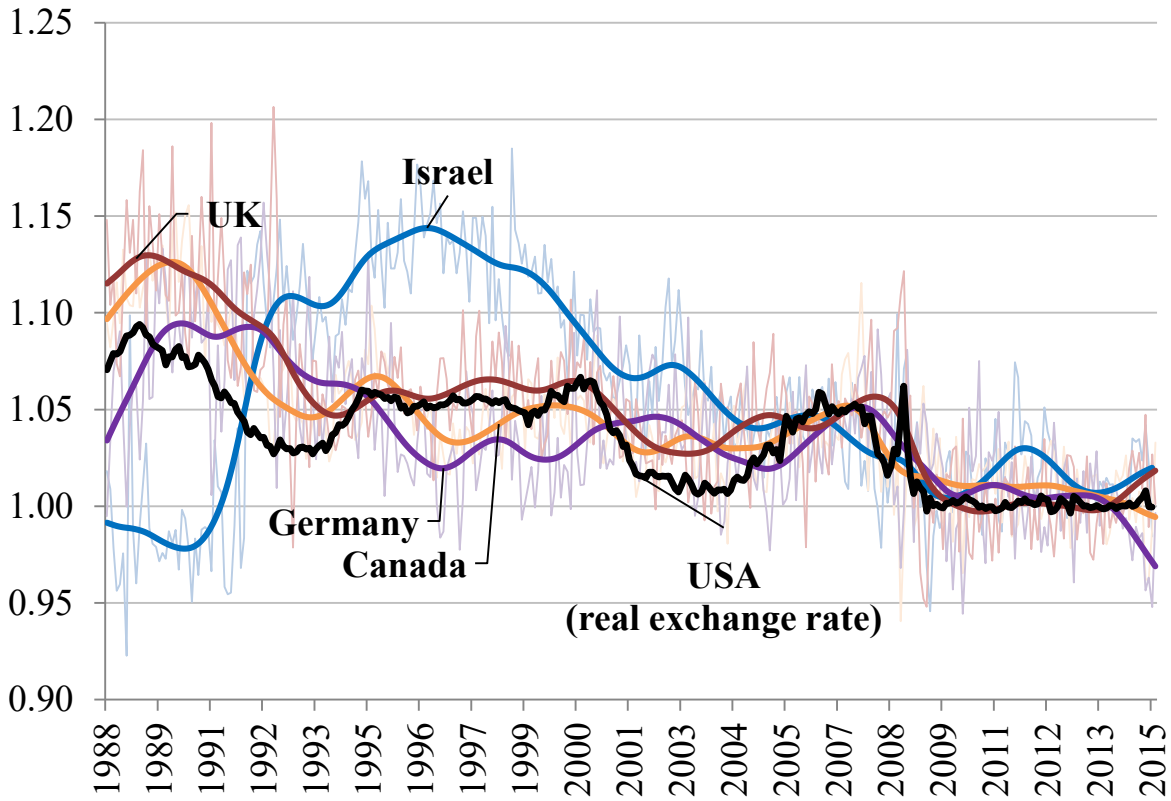
And, E stands for the nominal exchange rate vis a vis the US dollar, and P stands for the price level.

Figure 2.2 plots the graphs of the real-interest-rate, adjusted for real exchange rate changes, the yields on three-month government bonds for Israel, Canada, Germany and the United Kingdom, and the yields on three-month US government bonds. International financial integration generates more synchronized country-specific yields. Time series are filtered so as to wash out short-run

[25] Recall that by the Fisher equation:
$1 + r_t^{US} = (1 + i_{US}^t) \frac{P_{US,t}}{P_{US,t+1}}$, That is, $(1 + r_t^i) \frac{q_{i/US,t+1}}{q_{i/US,t}} = (1 + i_i^t) \frac{P_{i,t}}{P_{i,t+1}} \frac{q_{i/US,t+1}}{q_{i/US,t}}$.

idiosyncratic fluctuations. Figure 2.2 demonstrates strikingly that in the 1990s Israel became significantly more fully integrated into the world financial markets.

Figure 2.2: Gross Real Interest Rate Adjusted for Real Exchange Rate Changes (US benchmark)



Note: Series are HP-filtered. Monthly data are shown in the background.

Source: Stats Bureau, FERD, World Bank, Real-exchange-rate adjusted, yields on three-month government bonds for Israel, Canada, Germany and the United Kingdom, and the yields on three-month US government bonds.

2.3. Concluding Remarks

The absence of constraining rules on actions of the Bank of Israel and on Israel's fiscal authorities induced strongly accommodative monetary policies and uncontrolled inflation. With improper financial sector regulation, (e.g., the so-called "Visut Menayot") banks were on the verge of collapsing in the 1984 crisis. They were able to recapitalize making their investment portfolios less risky over the next two decades, thanks to more rigorous bank regulations.

The 1990s globalization trends in Israel facilitated tighter controls on monetary and fiscal policies and triggered the great convergence to low advanced economies' inflation rates. However, globalization abetted increased income (market based) inequality. Improvements in the quality and range of financial services while broadening access to new financial services and products, may narrowly improve the quality of financial services for high income households with access to financial services (Greenwood and Jovanovic 1990). But such access to financial investments may not exist for low income households. International financial liberalization helps lower the borrowing constraints of high income households without changing the tight borrowing constraints of low income households. Indeed, De Haan and Sturm (2016) bring new evidence that support the argument that financial liberalization increase income inequality.[26]

[26] See also Section 1 for the development in the disposable income inequality, which was governed by changed redistribution policies.

3. The 2008 Global Crisis and Israel

3.1. Introduction

Economists had difficulty coping with the 2008 global financial crises because prevailing analytic frameworks weren't up to the task, mainly because the financial sector fragilities were not addressed. They took inadequate account of four major factors:

(1) the destabilizing cumulative effects of financial deregulation, hedge funds, electronic trading, financial entrepreneurship such as subprime mortgages, derivatives and mortgage-backed securities; moral hazard, regulatory laxness, regulatory hazard (such as "mark to market");

(2) One-way-street speculation which led to risk-shifting incentives, "too-big-to-fail" financial intermediaries, hard asset bubbles (real estate, commodities, energy);

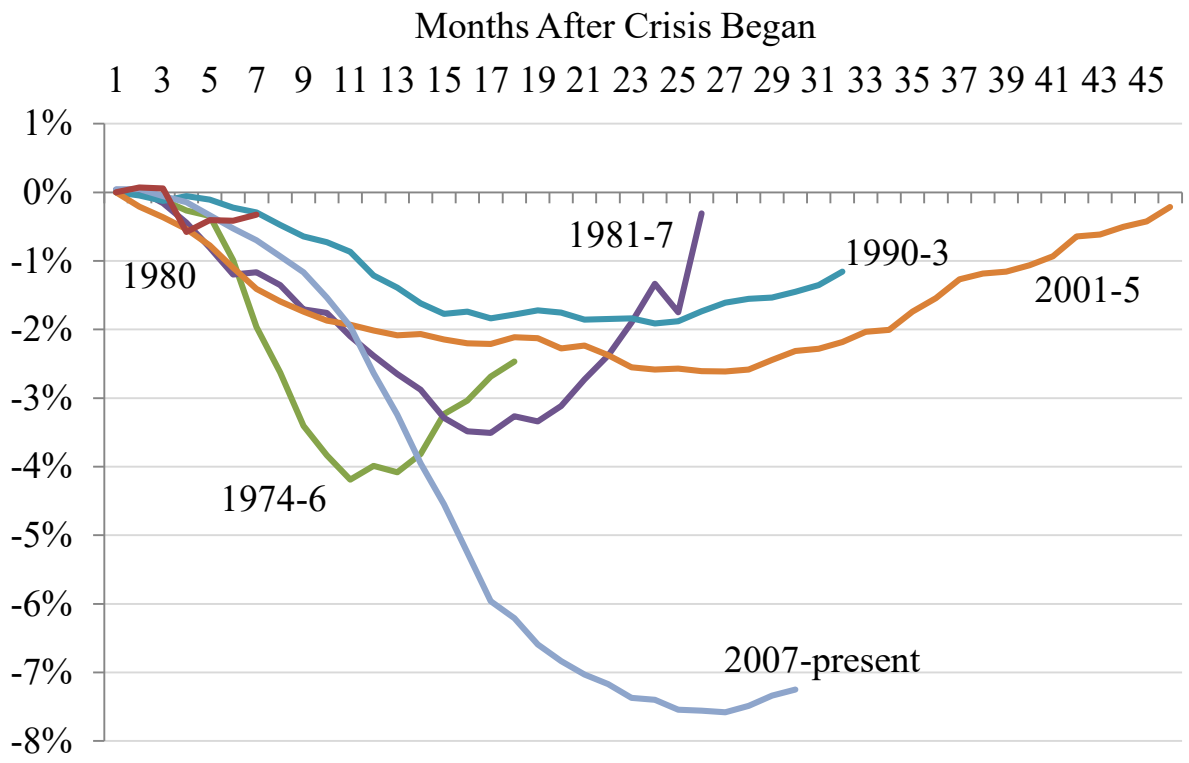
(3) Structural deficits with fiscal hidden liabilities, special interest transfers, global imbalances; and more.

(4) Low inflation target leading to liquidity traps in the presence of financial shocks.

All these unrecognized pressures simmered without any policy response perhaps because economists had come to believe that policy makers had learned how to tame the financial beast, decades after the Great Depression. With the advantage of hindsight, a decade after the global crisis, both the strengths and weaknesses of the pre-crisis economic consensus can usefully be discerned and appraised, with an eye toward parsing future research.

Figure 3.1 illustrates how different was the employment decline under the Great Recession compared to all post world war II downturns. The 2008 global financial crisis that erupted in the United States instantaneously swept across Europe.

Figure 3.1: Employment Declines in Various US Crises



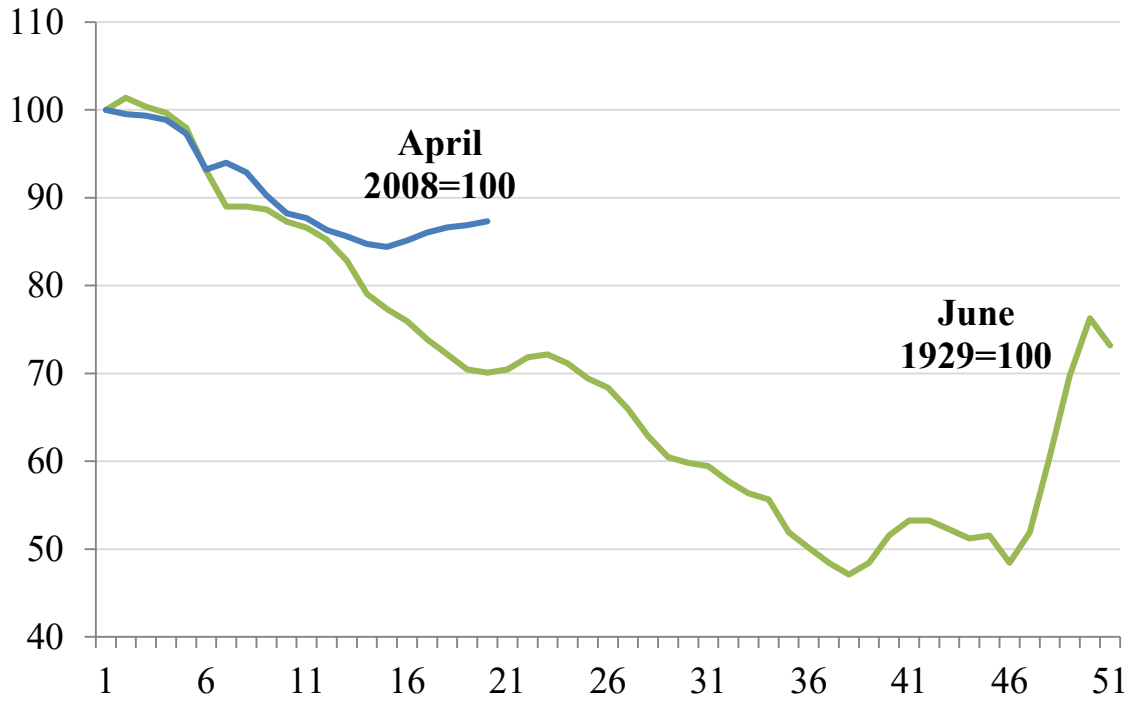
Source: Razin (2015).

A critical piece of the financial crisis and its perplexing aftermath is global imbalances, often called the global savings glut. This means that some nations (e.g., China) under-consume and over-export, while other nations, such as the United States, over-consume and over-import, devaluing the latter's currency and pressuring its Federal Reserve to keep interest rates too high to adequately stimulate recovery. Asia's liquidity glut flooded into the lightly regulated American shadow banking system (including mortgage institutions) and inundated many smaller countries such as Iceland, Ireland, and Estonia sparking speculation

and asset bubbles that soon burst with dramatic adverse effects on risk perceptions in the world's short-term interbank loanable funds market. Burst asset price bubbles reduced banks' worldwide lending ability, a problem compounded by tightened loan requirements that limited access to emergency credit infusions.

The recent global crisis had some similarities with the Great Depression. Both appear to have been triggered by a credit crunch following a sudden burst of asset-price and credit bubbles. Recovery of world industrial production starts much earlier in the Great Recession than in the Great Depression. Periods of depressed output are significantly shorter in the former than the latter, thanks to different policy reactions and improved financial and budget institutions. Figure 3.2 illustrates the similarity in terms of the initial financial shock which the world industrial production suffered. It also indicates how the persistent decline in output was more severe in the Great Depression than the Great Recession.

Figure 3.2: World Industrial Production in Months after the Crises Peak



Source: FRED and Eichengreen and O'Rouke (2010).

This does not mean that economists understand how to use fiscal policy and supplementary monetary instruments to recover optimally or prevent future reoccurrences, given the often-destabilizing expectations of the private sector due to conflicting incentives, finance fragility, and politically gridlocked governments. Rather, it means that complacency based on incomplete knowledge of how the system works is no longer tenable, and reassessment of past output, employment, and finance stabilizing measures is in order.

3.2. Pre-Crisis Conventional Wisdom

Pre-crisis conventional wisdom held that business cycle oscillations were primarily caused by productivity shocks that lasted until price- and wage-setters disentangled real from nominal effects (Lucas 1975, 2000, 2003), or monetary shocks, in view of staggered wage and price adjustments. These real and monetary shocks sometimes generated inflation or deflation, which it was best addressed with monetary policy. Accordingly, central bankers were tasked with the mission of maintaining slow and stable inflation. Zero inflation and deflation were shunned, because they purportedly were incompatible with full capacity and full employment (Phillips 1958; Phelps 1967; Friedman 1968) and well-managed monetary policy. Central bankers were supposed to be less concerned with real economic activity, many came to believe that full employment and 2 percent inflation could be sustained indefinitely by *divine coincidence*. The divine coincidence was said to be made all the better by the analytical discovery that the real economic performance could be regulated, in theory, with only a single monetary instrument, the short-term interest rate. Evidently, arbitrage across time meant that central banks could control economy-wide temporal interest rates, short and long, and arbitrage across asset classes implied that the Federal Reserve ("the Fed") could similarly influence risk-adjusted rates for a diverse set of securities. Fiscal policy, which had "ruled the roost" under the influence of crude Keynesianism from 1950 to 1980, in this way was relegated to a subsidiary role of

macroeconomic stabilization. This view was reinforced by macroeconomic theorists' beliefs in the empirical validity of friction-free Ricardian-equivalence arguments and skepticism about lags and political gridlocks, which makes discretionary fiscal policy as a stabilization tool practically irrelevant.

It is also true that little attention was paid to the financial sector in macroeconomic theory. The financial sector prudential policy was perceived as regulatory, only affecting structural performance but not business cycle performance. It wasn't treated as an aggregate demand management issue. The consensus view held that automatic stabilizers such as unemployment insurance should be retained in order to share privately uninsurable risks. Federal deposit insurance was preserved to deter bank runs, and commercial banks' credit and investments continued to be regulated to prevent moral hazard under the federal deposit insurance, but otherwise finance was lightly supervised, especially "shadow banks," hedge funds, mortgages, and derivatives.

3.3. Two Camps

Two separate narratives have emerged in the wake of the 2008 Global Financial Crisis. One interpretation speaks of the bubble bursting role of private financial excess and the key role of the banking system in leveraging and deleveraging the economy. The other emphasizes the risk of inflation arising from

the expansion of the central bank balance sheet, the public sector debt over the private and worries about the risks of lax fiscal policies. Needless to say, most macroeconomic theorists now concede that the pre-crisis monetarist consensus was mistaken. Both recognize that with the Fed funds rate near the zero lower bound, the burden for stimulating recovery and short-term growth falls to nonconventional monetary policies, such as quantitative and credit easing. But, the agreement stops here. From this point on, the profession has split into two contending camps.

The "Ricardian faction" contends that further over-budget spending with deficit to GDP ratios in many large nations such as the United States will drive up interest rates, crowd out private investment, and have negative stimulatory impact. This could easily generate recession (depression) coupled with a bout of high inflation (deflation), due to excessive commercial bank liquidity. This is reminiscent of Friedrich Hayek warning that a surge of excessive liquidity can misdirect investments leading to a boom followed by a bust.

However, members of the other intellectual camp, concerned about the non-Ricardian conditions, such as credit frictions, market freezes, liquidity traps, and deflation, see matters vice versa. They insist that austerity policies and deflation are the danger under depressed markets (which via the Bernanke doctrine implies a Great Depression with rising real wages and excess savings; see Bernanke (1983)).

They deduce that avoidance of disaster hinges on temporarily raising public spending to fill in the gap of shrinking private spending, continued central bank credit easing, and quantitative easing. They are aware that this could have inflationary ramifications, which is helpful to lower the real interest rate, but brush the soon-to-arrive inflation peril aside by claiming that speculators will absorb most of the idle cash balances governments are prepared to print, because with zero interest rate, money and bonds are perfect substitutes. At the same time, inflationary expectations are to be replaced by deflationary expectations. Moreover, they contend that excess base money can be drained from the system, whenever banks decide to resume lending, but not fully, during a long period of de-leveraging by households and firms. And, as the icing on the cake, they proclaim that large multiplier effects during depression-like situations will not only raise employment but also provide the wherewithal to repay the government debt. They also emphasize the longer-term implications of deep unemployment that create a segment of the labor force that may become unemployable.

Notwithstanding these disagreements, the bottom line, therefore, is that the pre-2008-crisis faith in just one monetary lever, ensuring stability and growth, proved to be only wishful thinking. The dynamics of macro-aggregates depends on heterogeneous expectations, information, and contractual and credit frictions of erstwhile utility seekers under incomplete information, in morally hazardous and

incomplete financial markets, subject to sundry shocks. Policy management is correspondingly complex, particularly in the presence of de-leveraging and liquidity trap conditions; and still more challenging in imperfect regulatory regimes where low inflation is targeted to ensure full employment and rapid economic growth, susceptible to moral hazard, adverse selection, coordination failures—the unavoidable characteristics of any financial intermediation. That is, we should not lose sight of the financial sector as a central pillar of the macroeconomic model. Fiscal policy also needs serious rethinking.

3.4. Recent Global and Regional Crises

Insight into the central role of the financial sector in contemporary macro-economies can be brought into sharp focus with four historical comparisons: a) credit implosion leading to a severe banking crisis in Japan; (b) The meltdown of foreign reserves triggered by foreign hot-money flight from the frothy economies of developing Asian nations with fixed exchange rate regimes; (c) The global financial crisis; and (d) The euro-zone crisis (see Razin (2015)).

Japan was lashed by a speculative tornado in 1986–1991. It was localized, brief, and devastating, with enduring paralytic consequences often described as the "lost decades" (1991–2013; before Abe-economics). The phenomenon was a selective price bubble, disconnected from low and decelerating GDP inflation all

the way to deflation, as well as diminishing rates of aggregate economic growth converging asymptotically toward zero.

The Asian financial crisis that erupted in 1997 was triggered by foreign capital flight, which induced liquidity and credit implosions. It began as a run on Asian banks by foreign short-term depositors and expanded into an assault on government foreign currency reserves, sending shock waves as far as the shores of Russia and of Argentina.

The global financial crisis generated the deepest and longest recession since the Great Depression of the 1930s. The defining event of the 2008 global financial crisis was a “hemorrhagic stroke”: a paralytic implosion of the loanable funds markets. The post–September 2008 emergency was caused by the terrifying realization that major financial institutions, especially those connected with hedge funds, could not cover their current obligations either with asset sales or short-term bank credit because confidence in the value of their assets had been lost, and short-term lending suddenly ceased. People everywhere were panicked at the prospect of cascading financial bankruptcies, where the securities of failed companies contaminated the value of other assets, triggering margin calls, shuttered credit access, lost savings, bank runs, stock market crashes, liquidity crises, universal insolvency, economic collapse, and global ruination.

The global financial crisis, which erupted in the United States, instantaneously swept across Europe and triggered the euro-zone crisis. Like the United States, the European Monetary Union was ripe for a crash. As mentioned earlier, the EMU had its own real estate bubble (specifically in Ireland and Spain), had indulged in excessive deficit spending, was financially deregulated, and had rapidly expanded credit (partly through derivatives). Policy responses and recovery patterns for key European Union members such as Germany, France (within the euro zone), and the United Kingdom (outside the euro zone) were similar. However, after the bubble burst and the crisis began unfolding, it became clear that the euro-zone plight differed from America's in one fundamental respect. There was no exact counterpart of euro-zone GIIPS (Greece, Ireland, Italy, Portugal, and Spain) in the United States. Some American states had over-borrowed, but the sovereign debt crisis did not place individual states at deflationary risk or threaten the viability of the federal union. Not so for some members within the euro zone

3.5. Financial-Sector Fragilities

These fragilities and frictions that periodically erupt into financial crises are rooted in coordination failures, incentive problems, asymmetric information, risk-shifting behavior, and excessive optimism among participants in collateralized debt

markets. Each and every one of these forces is present in global financial problems of the past few decades (see Goldstein and Razin (2015)).

Banks are known to finance long-term assets with short-term deposits. The advantage of this arrangement is that it enables banks to provide risk sharing to investors who might face early liquidity needs. However, this also exposes the bank to the risk of a bank run, whereby many creditors decide to withdraw their money early. The key problem is that of a coordination failure, which stands at the root of the fragility of banking systems: When more depositors withdraw their money from a bank, the bank is more likely to fail, and so other depositors have a stronger incentive to withdraw.

A key policy question is how to avoid and/ or mitigate the damages from coordination failures and runs in the financial system. While insurance has been effective, its implications for moral hazard merit careful consideration. There is room for more research on the optimal deposit insurance policy. Using recent developments in economic theory, global-games models enable analysis of the benefit of insurance in mitigating runs against the cost in generating moral hazard, leading to characterization of optimal insurance policy. The focus in these models is on the behavior of depositors or creditors of the banks. However, problems in the financial sector often arise from the other side of the balance sheet. The quality

of loans provided by the banks is determined in equilibrium. Frictions however make banks curtail lending to protect assets.

While basic economic theory suggests that prices adjust so that supply equals demand and no rationing arises in equilibrium, recent models show that this will not occur in the credit market because of the endogeneity of the quality of the loan. The key frictions causing rationing are moral hazard and adverse selection. If a borrower has the ability to divert resources at the expense of the creditor, then creditors will be reluctant to lend to borrowers. Hence, for credit to flow efficiently from the creditor to the borrower, it is crucial that the borrower maintains "skin in the game"; that is, that he has enough at stake in the success of the project, and so does not have a strong incentive to divert resources. This creates a limit on credit, and it can be amplified when the economic conditions worsen, leading to a crisis.

3.6. Currency-Crisis Theory: Three Generations

Currency crises occur when a country is trying to maintain a fixed exchange rate regime with capital mobility but faces conflicting policy needs such as fiscal imbalances or a fragile financial sector that need to be resolved by independent monetary policy.

The best way to understand the origins of currency crises is to think about the basic tri-lemma in international finance. A tri-lemma, as Mankiw (2010) recently wrote in the context of the 2010 euro crisis, is a situation in which someone faces a choice among three options, each of which comes with some inevitable problems. In international finance, the tri-lemma stems from the fact that, in almost every country, economic policy makers would like to achieve the following goals: First, make the country's economy open to international capital flows, because by doing so, policy makers of a country enable foreign investors to diversify their portfolios overseas and achieve risk sharing. The country also benefits from the expertise brought to the country by foreign investors. Second, use monetary policy as a tool to help stabilize inflation, output, and the financial sector in the economy. This is achieved as the central bank can increase the money supply and reduce interest rates when the economy is depressed and reduce money growth and raise interest rates when it is overheated. Moreover, the central bank can serve as a lender of last resort in case of financial panic. Third, maintain stability in the exchange rate. This is because a volatile exchange rate, at times driven by speculation, can be a source of broader financial volatility and makes it harder for households and businesses to trade in the world economy and for investors to plan for the future.

The problem, however, is that a country can only achieve two of these three goals. In order to maintain a fixed exchange rate and capital mobility, the central bank loses its ability to control the interest rate or equivalently the monetary base—its policy instruments—as the interest rate becomes anchored to the world interest rate by the interest rate parity, and the monetary base is automatically adjusted. This is the case of individual members of the European Monetary Union. In order to keep control over the interest rate or equivalently the money supply, the central bank has to let the exchange rate float freely, as in the case of the United States. If the central bank wishes to maintain both exchange rate stability and control over the monetary policy, the only way to do it is by imposing capital controls, as in the case of China.

Israel's hyper-inflation crisis in the early 1980s has elements of currency crisis, credit crunch, and bank runs, all in one mega crisis. The 2001 Argentina crisis has some similar elements. An important aspect of financial crises is the involvement of the government and the potential collapse of arrangements it creates, such as an exchange rate regime. Many currency crises originate from the desire of governments to maintain a fixed exchange rate regime that is inconsistent with other policy goals. This might lead to the sudden collapse of the regime. The literature on currency crises begins with the first-generation model attempting to understand the basic mechanism underlying the early 1970s breakdown of the

Bretton Woods global system. The literature on currency crises continues with the second-generation model, attempting to understand the basic mechanism underlying the 1992 collapse of European exchange rate Mechanism Monetary, whereby the European exchange rates were to converge into a single currency.

Such models are highly relevant to the current situation in the European Monetary Union. The international financial trilemma approach is particularly instructive. It stipulates that a country can choose only two of three policy goals: free international capital flows, monetary autonomy, and the stability of the exchange rate.[27] Countries in the euro zone now realize that in their attempt to achieve the first and third goals, they have given up on the second goal, and so have limited ability to absorb the shocks in economic activity and maintain their national debts, triggered by the global financial crisis. Coordination problems among investors and currency speculators aggravate this situation and may have an important effect on whether individual countries in Europe are forced to default and/or leave the monetary union.

The third-generation models of currency crises connect models of banking crises and credit frictions with traditional models of currency crises. Such models were motivated by the East Asian crises of the late 1990s, where financial

[27] See Razin (2015).

institutions and exchange rate regimes collapsed together, demonstrating the linkages between governments and financial institutions that can expose the system to further fragility.[28]

3.7. The Emerging Macroeconomic Paradigm

Historical patterns of booms and busts typically exhibit frequent small recessions interrupted by rare but deep and long recessions. These patterns, however, have not been adequately captured by the traditional macroeconomic models. Traditional macroeconomic models, used often by central banks and many other policy-making institutions, are not capable of delivering crisis features in history: frequent small recessions punctuated by rare depressions. Financial intermediaries, who have largely been omitted from the traditional macroeconomic framework, were treated simply like a veil that exists between savers and investors; not as a source of crisis by themselves. Financial frictions however, have first-order effects on economic activity, both in the long and the short runs.

The key feature missing from the traditional macroeconomic model described above is the role of financial intermediaries. Clearly, the 2008 crisis has shown that financial intermediary capital has a crucial role in the economy, and

[28] See Razin (2015)

losses incurred by financial intermediaries can have strong spillover effects to the rest of the economy. Recently, Gertler and Kiyotaki (2011) and Rampini and Viswanathan (2011) add a financial intermediary sector (albeit the crisis is driven by panic; unlike Holmstrom and Tirole (1997)) and analyzed the dynamic interactions between this sector and the rest of the economy. Introducing this sector into macroeconomic models enables elaborate discussions on various policies conducted by governments during the recent crisis in the attempt to stimulate the economy via the financial intermediation sector. Such policies are discussed by Gertler and Kiyotaki (2011).

A different angle on the role of credit frictions in the macroeconomics is provided by Eggertsson and Krugman (2012). They study a model with heterogeneous agents, where patient agents lend and impatient agents borrow subject to a collateral constraint. If, for some reason, the collateral requirement becomes tighter, impatient agents will have to go into a process of de-leveraging, reducing the aggregate demand. This excess saving leads to a reduction in the natural interest rate that might become negative, and the nominal (policy) interest rate hits the zero bound, putting the economy into a liquidity trap. Then, traditional monetary policy becomes impossible, but fiscal policy regains some potency. In their model, unanticipated tightening in the credit market, manifested as a fall in borrowing limits, forces consumers to cut spending. The borrowing-limit shock

triggers a vicious circle, whereby spending cuts lead to falling prices, which raise the real value of the consumer nominal debt. The ensuing debt overhang depresses consumption spending further, which leads to an additional fall in the price level and consumer spending, and so on - a credit market shock led to a transitional de-leveraging period with depressed demand and a liquidity trap The resilience of Israel to the external financial shock during the global crisis is rooted in (a) the absence of credit boom in the wake of the crisis, and (b) the relatively small commercial banks' exposure in terms of toxic assets that for the European countries played a major role.

The newly emerging macroeconomic paradigm spans the gamut from an analytical framework that features full capital-market arbitrage, smooth credit, Ricardian-equivalence properties, representative agents, and efficient monetary management, to a framework with multiple agents, incorporating debt frictions, liquidity traps, and relatively ineffective monetary management and provides a role for fiscal policy in aggregate demand management. The analytical framework based on the frictionless paradigm captures well the role of globalization forces and the reduction in inflation in the 1990s Great Moderation era. The multiple-agent, market-friction revised analytical framework captures some key features of the Great Recession that occurred in the aftermath of the 2008 global financial crisis. It gives insight about the macroeconomic effects of debt overhang on

economic activity and inflation, when the monetary policy rate reaches its lower bound.

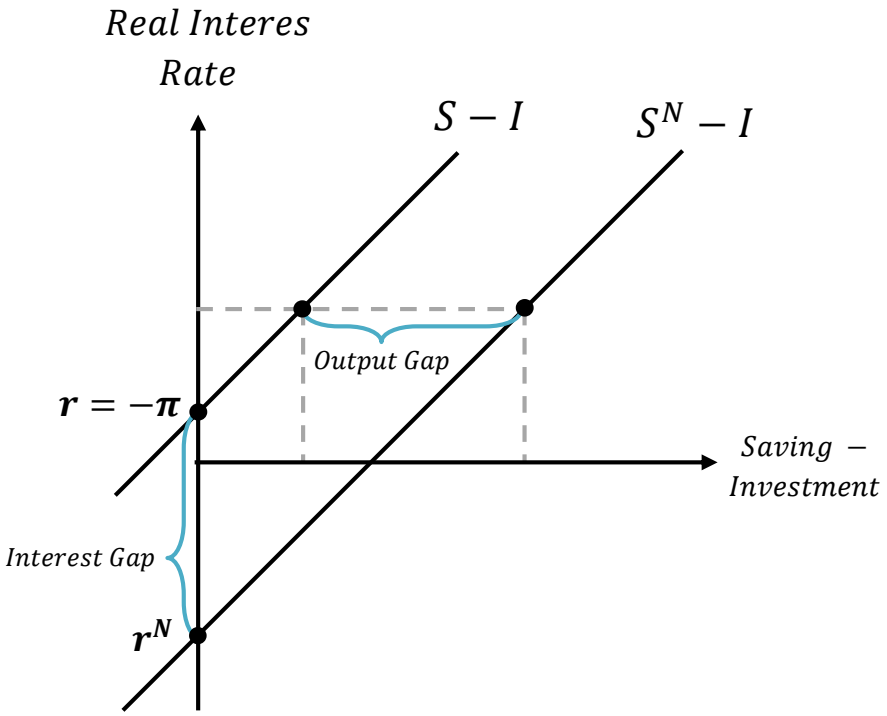
3.8. Secular Stagnation and International Spillovers

To understand the effects of monetary policy under financial depression we begin with concept of the natural real interest rate. The issue is how the natural interest rate is affected by an economy-wide financial shock; a shock that tightens the borrowing limits. When a borrowing limit unexpectedly falls, borrowing consumers are forced to cut spending, in order to consume and pay back old debt. Through a standard general-equilibrium mechanism this cut in spending lowers the natural interest rate. In a financially depressed economy the (full- price flexibility) natural interest rate may become negative. But the nominal interest is bounded below by zero. When the nominal rate reaches its zero lower bound, by the Fisher equation the actual real rate must equal the rate of price deflation. A gap opens between the natural and the actual real rates.

Figure 3.3 illustrate how the real interest gaps are linked to the output gap. In Figure 3.3, the output gap is measured by the horizontal difference between the *actual*-saving schedule and the *flexible-price* saving schedule. Larry Summers (2014) put forward a conjecture about the longer run implication of a liquidity trap. In his view the world is demand short — that the real interest rates necessary to

equate investment and saving at full employment are very low and may be often unattainable given the bounds on nominal interest rate reductions. The result is very low long-term real rates, sluggish growth expectations.

Figure 3.3: Twin Gaps



Source: Razin (2015)

Following the 2008 global crisis the world is demand short — that the real interest rates necessary to equate investment and saving at full employment are very low and may be often unattainable given the bounds on nominal interest rate reductions. Consequently, we witness very low long-term real rates, sluggish

growth expectations, and serious concerns about the ability to raise the rate of long term inflation.[29]

What are the potential spillovers from a secular stagnation in the advanced economies to small open economy like Israel? Recall from Section II that long term arbitrage for a financially integrated small economy whose natural real interest rate is positive implies a trend in real appreciation; if the world natural real interest is negative. Small country competitiveness weakens; harming its export-led growth possibilities.

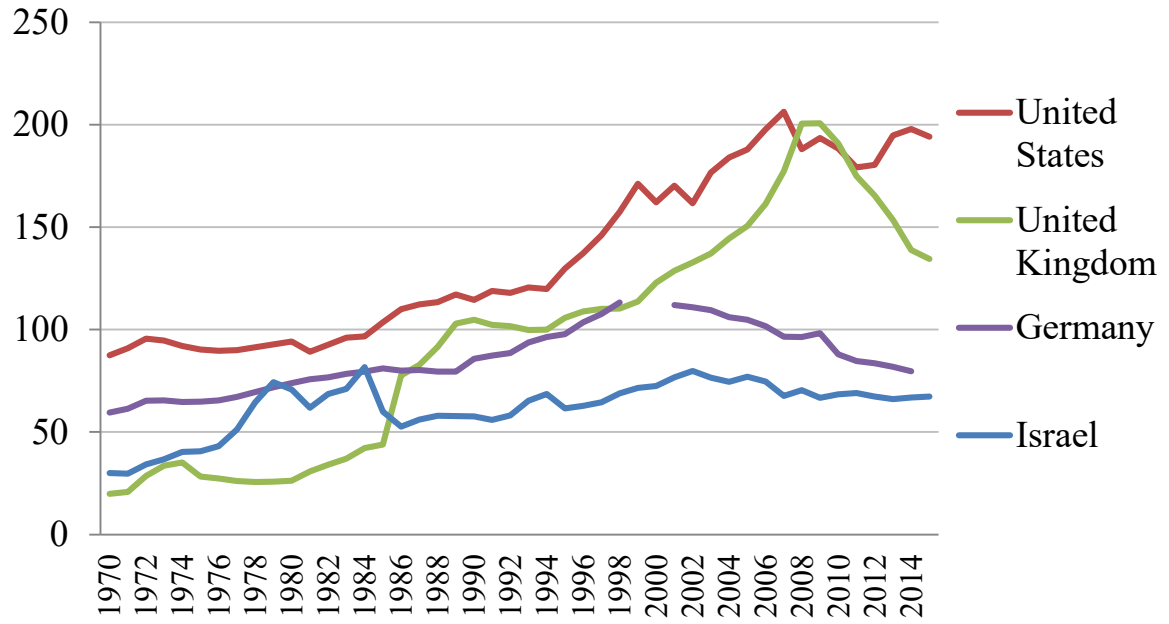
3.9. Israel's Resilience

The concern at the time was that Israel, being well integrated in to the world markets and the world finance, may suffer contagion that will be long-lasting. At the end of the day, Israel suffered only a temporary trade shock because of the decline in world demand.

As shown in figure 3.4, Israel did not have a significant credit boom in the wake of the 2008 crisis. US and the UK, in contrast, were vulnerable to a gigantic credit expansion (Germany, like Israel escaped such credit bubbles).

[29] Ben Bernanke (2016) recently analyzed the main reasons for the US FOMC's change of view concerning current interest policy. He advances three reasons: (1) Projections of potential output growth; (2) Projections of the natural rate of unemployment; and Projections of the natural (real) interest rate. Projections of all three long term variables have been reduced significantly. These projections are not inconsistent with the secular stagnation hypothesis.

Figure 3.4: Domestic Credit to Private Non-Financial Sector (% of GDP)



Source: International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.

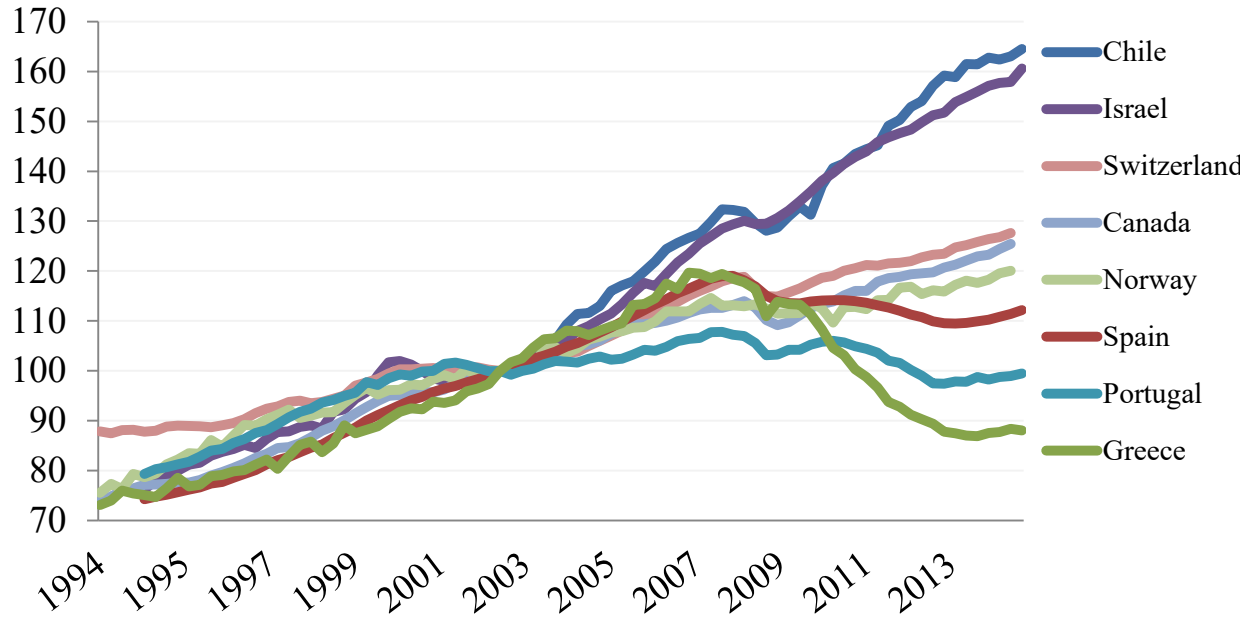
Note: Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The financial sector includes monetary authorities and deposit money banks, as well as other financial corporations where data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.

Nevertheless, GDP growth has averaged 4 percent over the 2005-2010 period years, compared with 0.7 percent on average for OECD countries. The overall living standards continue to improve gradually, with per capita real GDP growing more rapidly than in other OECD countries. The economy's resilience has been underpinned by solid economic fundamentals, including large foreign

reserves, a dynamic high tech export sector, and the absence of economy wide deleveraging pressures which led to downfall in economic activity. Because, Israel did not have a credit bubble in the years preceding the global financial crash, like the other major advanced economies, which burst during the financial crisis.

Israel's growth performance during and after the global crisis, however, was not unique. Figure 3.5 shows that among similar small open economies Israel's GDP grew over the recent 20 years, including the 2008-2010 period at a similar cumulative rate as Chile; but at a much higher rate than Greece, Spain and Portugal; which had a financial sector crash.

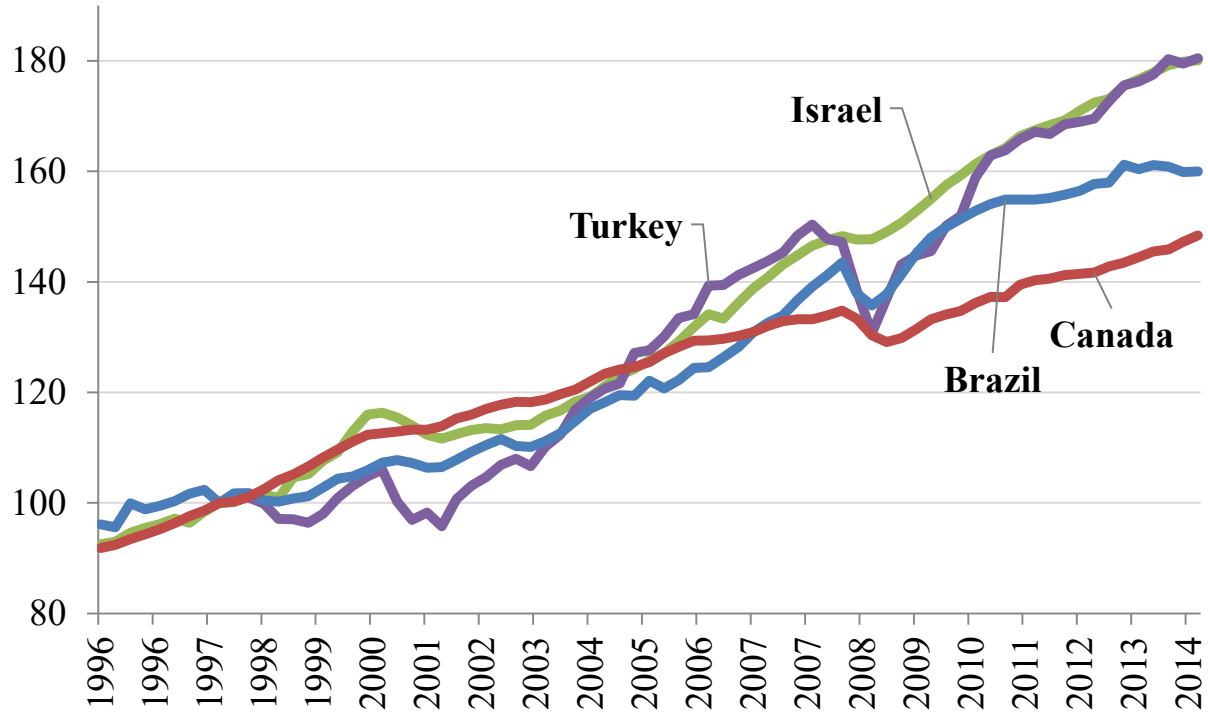
Figure 3.5: Real GDP, Israel and Selected Countries (Jan 2003 = 100)



Source: FRED

Furthermore, Figure 3.6 depicts GNP levels for Israel, Turkey, Brazil and Canada; economies which spared financial sector crash. Israel exhibits a more moderate drop of output than all these countries.

Figure 3.6: Real GNP, Countries with No Financial Crisis (January 1998 = 100)



Source: FRED

3.10. Capital Outflows from the US During the Crisis

In the aftermath of the global financial crisis, expansionary monetary policy in advanced economies conventional or unconventional, that were conducted to boost up the economy, has affected emerging market economies and others, such as Israel, through three channels:

(1) Reduced exports;

(2) Exchange rate appreciation; and,

(3) Effects of capital inflows on the domestic financial system.

A number of studies have found an effect of monetary policy on specific gross flows. Bruno and Shin (2015) for example, using a VAR methodology over the pre-crisis period (1995:4 to 2007:4) find an effect of the federal funds rate on cross-border bank to bank flows; the effect is however barely significant. Fratzscher et al (2013), using daily data on portfolio equity and bond flows, find significant effects of different monetary policy announcements and actions since the beginning of the crisis. Their results however point to the complexity of the effects of apparently largely similar monetary measures. For example, they find QE1 announcements decreased bond flows to EMs, while QE2 announcements increased them. In terms of the equations above, this suggests that, in each case, monetary policy worked partly through its effects on the risk premium. These studies cannot settle the further issue of whether or not total gross inflows increase with advanced economies monetary expansions: The increase in the inflows the researchers have identified may be offset by a decrease in other inflows[30]. However, studies of total inflows, or of the set of inflows adding up to total inflows, yield some mixed conclusions. A representative and careful paper, by Cerutti et al (2015), using quarterly flows over 2001:2 to 2013:2, suggests two

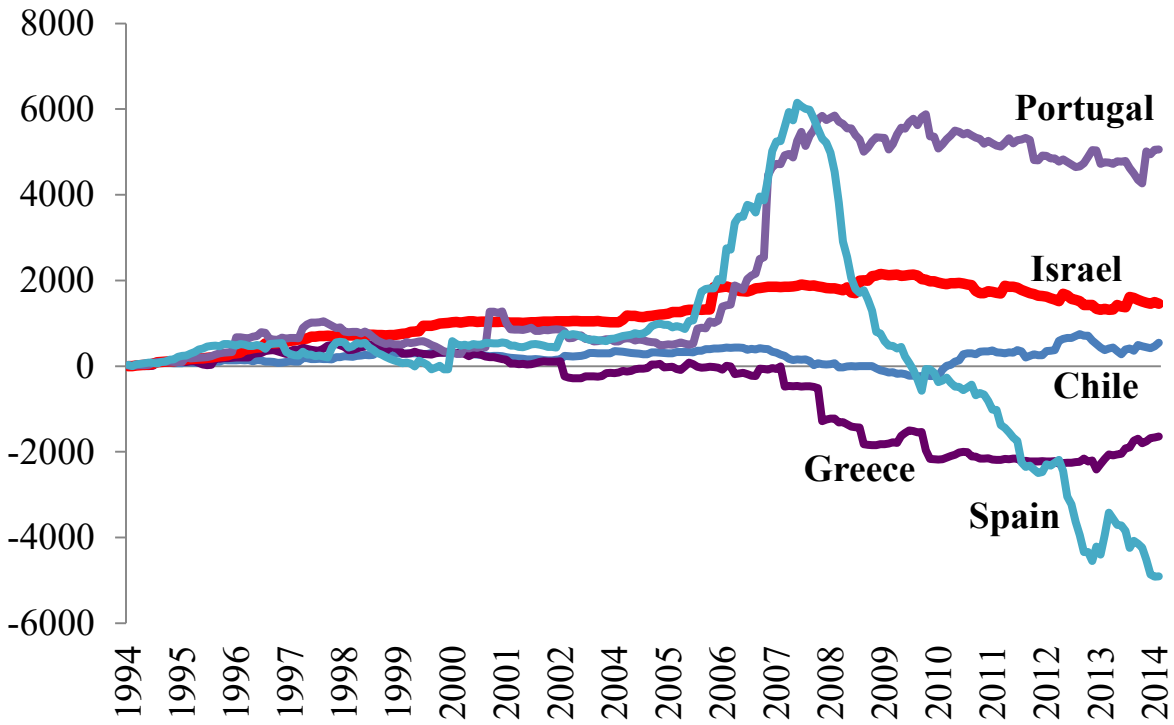
[30] See Blanchard (2016) who surveyed the literature about post 2008 crisis in advanced economies and emerging economies that were hit to different degrees by the global financial crisis. To a large extent, the emerging markets escaped the brunt of the crisis. Israel evidently belongs to the second group.

main conclusions. The most significant observable variable in explaining flows into Emerging Markets (EMs) is the VIX index: An increase in the VIX leads to a decrease in inflows to EMs. The coefficients on the monetary policy variables, namely the expected change in the policy rate and the slope of the yield curve, typically have the expected sign.

It is worth looking now at capital inflows to EMs and Israel from the US, the epicenter of the global financial crisis, and the country which adapted with virtually no lag a brief expansionary fiscal policy and a persistent expansionary monetary policy.

Figure 3.7 describes the portfolio capital outflows from the US to selected countries. Israel is in the middle of the pack of countries which enjoy inflow of portfolio capital investments. These inflows put appreciation pressures on the exchange rates. Some central banks, including BOI, conducted a massive purchase of foreign currency denominated assets, to protect against the declining competitiveness in the world trade.

Figure 3.7: Portfolio Flows, Crisis Economies (Index, Dec 1994 = 100)



Source: Anusha Chari

3.11. Israel in the Midst of the "Currency War"

In the aftermath of the global financial crisis, expansionary monetary policy in advanced economies' conventional or unconventional, that were conducted to boost up the economy, has appreciated the currencies of the emerging market economies, including Israel. The question for these economies was whether an expansionary monetary policy, which tends to depreciate the currency and boost exports requires also a direct foreign exchange market intervention; or whether the latter can succeed without the former.

Under perfect asset substitutability between foreign and domestic assets, the money supply can fully adjust to bring expected rates of return on domestic and foreign currency bonds into equilibrium, as in the standard interest parity. Sterilized foreign- exchange-market intervention by the monetary authorities, where the domestic money supply is unchanged, is incapable of pushing the exchange rate up or down. However, the proposition may change in the presence of imperfect asset substitutability, where domestic and foreign bonds command a different liquidity premium and risk premium. Changing the composition of central bank assets between foreign and domestic assets (the case of sterilized foreign exchange rate market interventions) can then have real economic effects in the presence of credit market spreads and frictions. In this case, sterilized foreign-exchange-market intervention could effectively change the value of the foreign currency in terms of domestic currency. A sterilized purchase of foreign assets may change the liquidity premium that domestic bonds command, relative to foreign bonds, even though the money supply is left unchanged. A similar outcome may transpire when foreign exchange intervention changes market views of future foreign-exchange-market interventions. Similarly, liquidity-based imperfect asset substitution between domestic government and domestic private-sector bonds

during liquidity crises can be exploited by the central bank.[31]Recall that the most significant observable variable in explaining short term flows into Emerging Markets (EMs) is the VIX index: An increase in the VIX leads to a decrease in inflows to EMs. The VIX index is directly related to the risk adjusted return on domestic government bonds in the periphery countries, like Israel. Sterilized foreign-exchange market purchase of US government bonds by the central bank, is then capable of blocking exchange rate appreciation. This was the rationale for the Bank of Israel policy in the aftermath of the global financial crisis. But, the effectiveness of such policy is short lived. Once the VIX index falls, sterilized-foreign-exchange-market intervention becomes ineffective. Excessively high foreign reserves also have fiscal medium term costs.

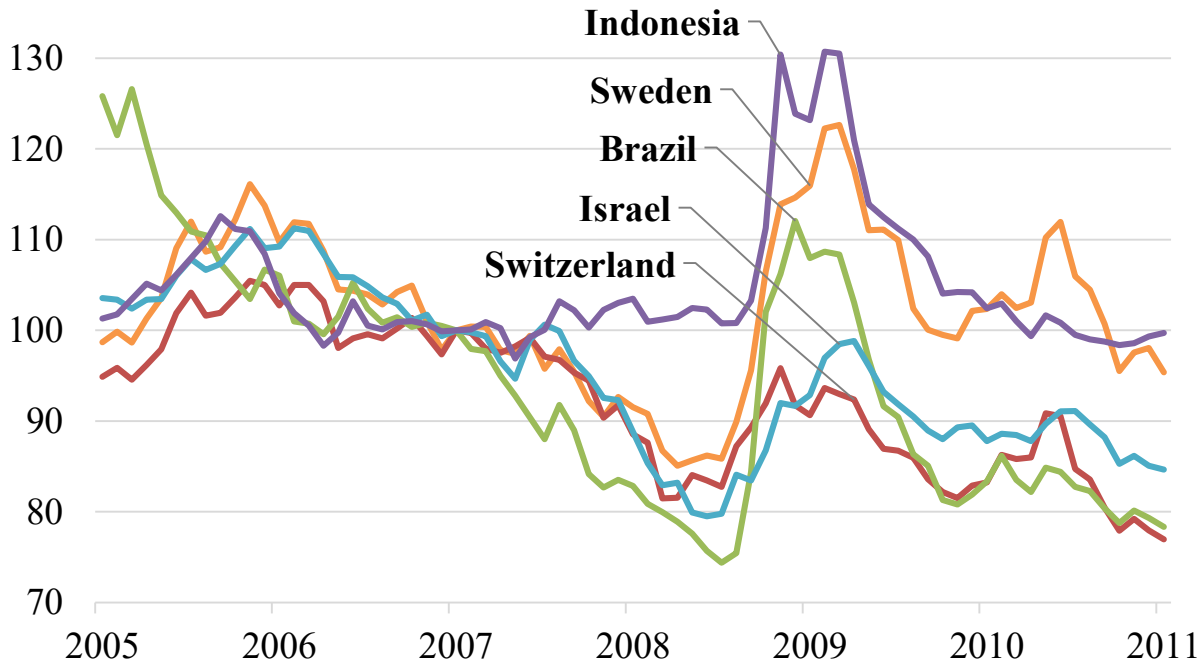
Figure 3.7 describes the changes in foreign exchange reserves for selected countries. Israel foreign exchange reserves grew significantly more than those of the advanced economies but not much different from those among the non-OECD countries.[32]

Figure 3.8 describes the nominal exchange rate of various countries that engaged in the "currency war" period: Israel, Sweden, Switzerland, Brazil and

[31] See Krugman et al. (2015).
[32] The phenomenon of a group of countries intervening to retain undervalued exchange rate is often referred to as "currency war".

Indonesia. Israel seems to have undervalued its currency the least among these countries; possibly because thanks for its international financial integration and almost no capital controls, the effectiveness of sterilized intervention was weak.

Figure 3.8: Nominal Exchange Rate of Various Countries that Engaged in the "Currency War" Game: Israel, Switzerland, Sweden, Brazil and Indonesia (2007=100)



Source: FRED

3.12. Concluding Remarks

Historical patterns of booms and busts typically exhibit frequent small recessions interrupted by rare but deep and long recessions. Traditional

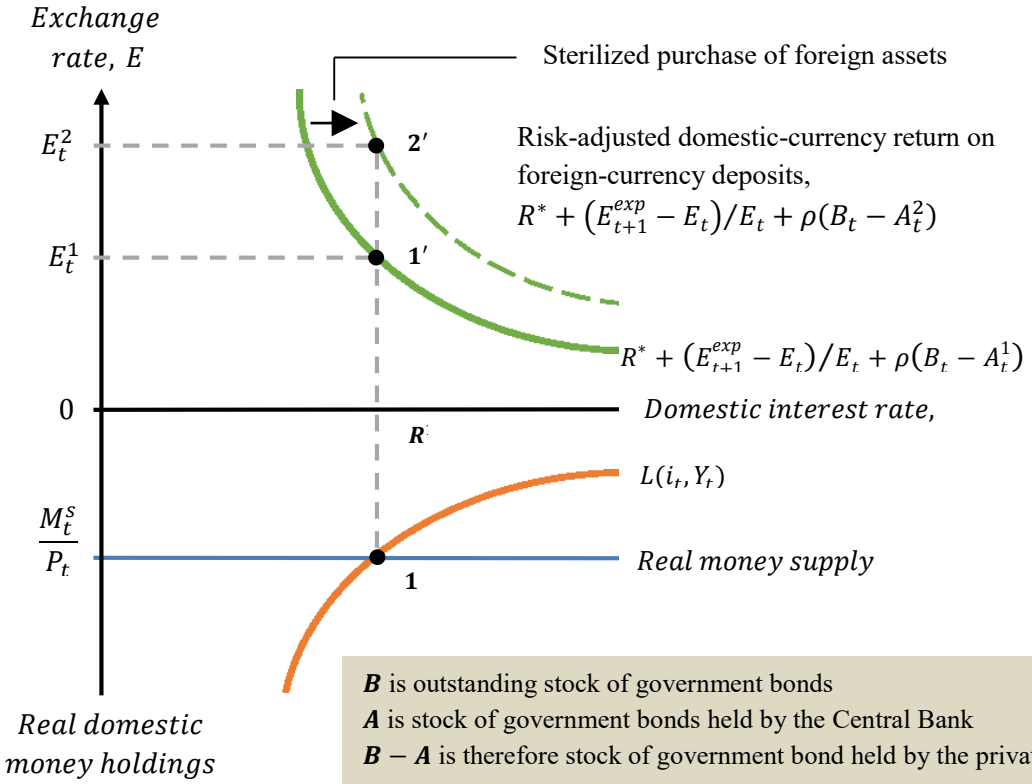
macroeconomic models, used often by central banks and many other policy-making institutions, don’t capture the full features of crises: frequent small recessions punctuated by rare depressions. They don't illuminate how small open economies, like Israel, which are substantially integrated into the world economy, perform when a global financial shock takes place, leading to recession as deep and persistent as the Great Recession. We discussed in this Section the relatively robust performance of Israel (as well as some other advanced economies (e.g., Canada), and major Emerging Markets in the aftermath of the 2008 global financial crisis. Factors contributing to this robustness, are the absence of credit and real estate bubbles, and banks’ tight regulation in the wake of the crisis which precluded the deleveraging process following the financial crisis.

Appendix: Foreign-exchange-market intervention with, and without, risk-related credit flow frictions

A sterilized purchase of foreign-government bonds leaves the money supply unchanged but raises the risk adjusted return that domestic government bonds must offer to offset the alternative return on foreign government bonds. Figure A (see Krugman et al. (2015), page 516) describes the shift in the return curve in the upper panel up and to the right. This is the consequence of the substitution of foreign government bonds for domestic government bonds in the asset side of the (domestic) central bank, which conducts the sterilized foreign-exchange-market intervention. That is the stock of domestic bonds held by the private sector rises and so does the risk premium.

Note that if the risk premium does not change the sterilized foreign-exchange-market intervention cannot affect the exchange rate.

Figure A: Sterilized Foreign Exchange Market Intervention



B is outstanding stock of government bonds
A is stock of government bonds held by the Central Bank
B − ***A*** is therefore stock of government bond held by the private sector

4. The Emerging Economies of South-East Asia

The global economy was jolted in the mid-1980s by China's and Vietnam's decision to abandon autarky in favor of export led growth and embrace "market communism". Socialist India and Moslem Indonesia liberalized and emulated their neighbors' trade participation strategy soon thereafter.[33] Suddenly, and with little warning more than a third of the world's population joined the post-war globalization parade powerfully effecting global demand everywhere, including Israel.

4.1. East Asia Rises

Liberalization, globalization, outsourcing and technology transfer were the key drivers, not domestic rates of economic growth. China claimed double digit GDP growth from 1950-1976 during the Maoist epoch, but its trade participation, outsourcing and inflowing foreign direct investment were negligible, as were its contribution to global economic vitality. [34]

Beijing began distancing itself from autarky in the1980s when Deng Xiaoping introduced special economic zones (SEZ) in Shenzhen, Zhuhai and Shantou and Xiamen, and designated the entire province of Hainan as a special

[33] Biru Pashka and Das, (2012).
[34] Rosefielde, (2014).

economic zone. In 1984, China further opened 14 coastal cities to overseas investment: Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Shanghai, Ningbo, Wenzhou, Fuzhou, Guangzhou, Zhanjiang and Beihai.

China leveraged the opportunities for outsourcing and technology transfer afforded by SEZs by liberalizing its domestic economy. This involved a rapid sequence of market oriented reforms that circumvented communist ideological prohibitions against private ownership by allowing entrepreneurs and state companies to lease assets while preserving the Party's monopoly on freehold property. The first reform called "Gaige Kaifang" (literaly, reforms and openness) lasted more than a decade from 1976 until shortly after the Tiananmen Square massacre, June 5, 1989. The idea at its core was the gradual reversal of the three ideological pillars of command economy: criminalization of private property, criminalization of private business, and criminalization of entrepreneurship.

The centerpiece of the post-Mao system was "household-responsibility system" (allowing peasant family households to operate their plots independently of team and communal influences) which made it possible for them to prosper by increasing productivity and selling above quota output in collective farm markets and household (cottage) industries in 1980. The principle soon thereafter was

applied nationwide. The household-responsibility system was coupled with the "town village enterprise" (TVE) movement, an effort to transform the separate profit seeking activities of individual households into a coordinated agro-industrial communal business. TVE were flexible, and enjoyed considerable discretion in choosing and implementing agro-industrial activities. As time passed many TVEs began operating as private enterprises, despite their cooperative form,[35] and prospered in part due to the absence of freehold property owning competitors,[36] and newly decentralized state finance.[37]

The second phase of Deng Xiaoping's march to partially consumer sovereign markets (as distinct from market assisted command) can be conveniently dated at 1992, when he undertook his famous "Southern Tour" to Shenzhen. During the trip, Deng characterized China's emerging productive order as a "socialist market economy,"[38] and asserted that "If China does not practice socialism, does not carry on with 'reform and opening' and economic development, does not improve the people's standard of living, then no matter what direction we go, it will be a dead

[35] Wong, (1988).
[36] Kung & Lin, (2007).
[37] Oi, (1992).
[38] The possibility of *market socialism* was debated in the 19th century, but rejected by most communists in 1929 when Stalin forcibly collectivized the Soviet Union. The idea was resurrected in the west by Oscar Lange in 1936-37, and has been influential ever after. See Lange and Taylor, (1938). Stalin was impressed by Lange's theory. He summoned him to Moscow for consultations and Lange lobbied Franklin Roosevelt on Stalin's behalf regarding the government of postwar Poland. From 1961-65 Lange served as one of four acting Chairmen of the Polish State Council (Head of State).

end." This clarion call to reinvigorate the marketization process in the aftermath of the Communist Party's post-Tiananmen Square retrenchment was successful.

Deng's team promptly transformed red directors into managers of market competitive state owned enterprises (SOEs), and then ultimately into managers of private companies by expanding and codifying their powers in "The Regulations on Transforming the Management Mechanism of State-Owned Industrial Enterprises," issued July 1992. The document granted managers 14 control rights over: (1) production, (2) pricing, (3) sales, (4) procurement, (5) foreign trade, (6) investment, (7) use of retained funds, (8) disposal of assets, (9) merger and acquisitions, (10) labor, (11) personnel management, (12) wages, (13) bonuses, and (14) internal organization, and refusal to pay unauthorized charges by the government.

These developments have been accompanied by parallel stock market and banking reforms, allowing SOEs to increase equity (shares) sales to outsiders, and banks to tighten credit discipline over profligate SOEs. They also facilitated market-driven reshuffles of corporate structure through mergers and acquisitions (M&A). China joined the WTO in 2002. Vietnam followed a nearly identical path

to liberalization and globalization under the banner of Doi Moi (renewal) and joined the WTO in 2002. [39]

India and Indonesia never were communist nations and didn't have to undo the trammels of command economies, but both markets were severely over-controlled. While details of liberalization and globalization differed, the thrust to laissez-faire was the same.

The reform process in India sought to accelerate economic growth and eradication of poverty. The process of economic liberalization began in the late 1970s, picked up momentum in July 1991 a systemic shift to a more with open economy with greater reliance upon market forces, a larger role for the private sector including foreign investment. Subsequent reforms have gone a long way in decontrolling the domestic economy,[40] like China emphasizing gradual transition rather than "shock therapy".

[39] China's long-lasting fixed exchange rate policy put together with capital controls enabled the Chinese authorities export-led growth (With the renminbi being frequently under-valued) while using monetary policy to control domestic inflation. But, China is likely to have to let the renminbi exchange rate float freely sometime over the next decade. It might seem odd that a country running a huge trade surplus ($600 Billion in 2015) would be worried about currency weakness. But a combination of factors, including slowing economic growth and a gradual relaxation of restrictions on investing abroad, has unleashed a torrent of capital outflows.

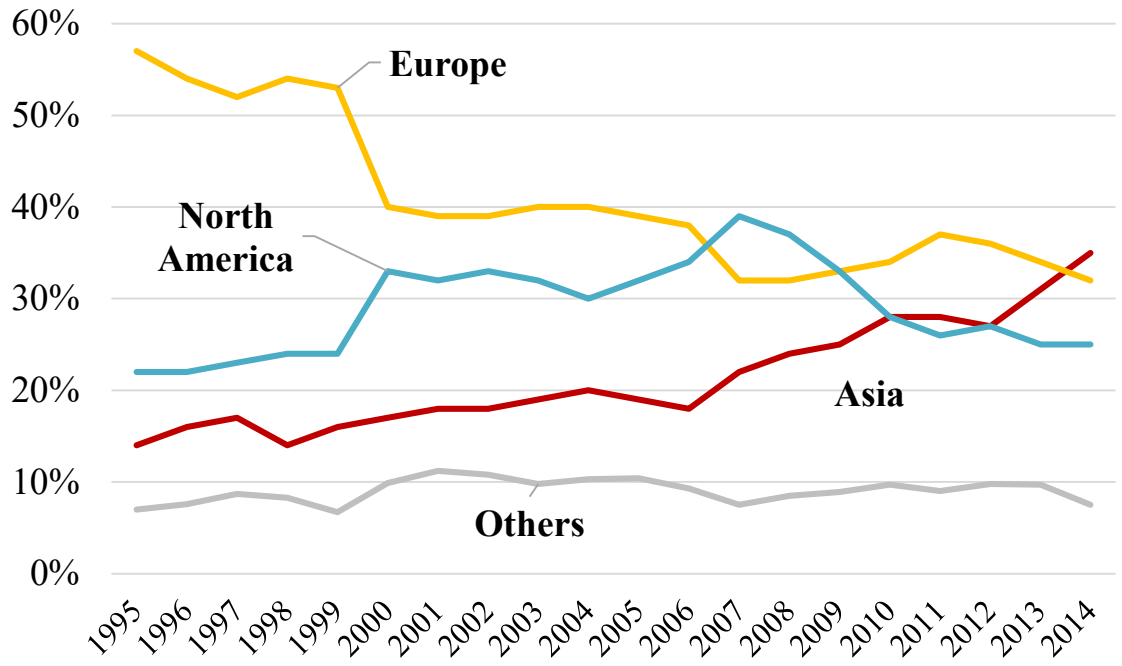
[40] Indian federal government embraced free market policies in 1991 and at the same time devolved the power of the states, including authority over taxes. But only recently, the Indian lawmakers cleared the way for India to become a single economic zone, by introducing the federal Goods and Services Tax (a value added tax) which can abolish the overlapping federal and state taxes. This new law is in the process of being put in place after a long series of legislative steps and the approval of the constitutional amendment by the upper house of the parliament.

The changes initiated in 1991 eliminated the dominance of the public sector in the industrial activity; discretionary controls over private industrial investment; trade and exchange controls, tight restrictions on direct foreign investment, and the over-regulation of the financial sector. The reforms unleashed powerful entrepreneurial forces. Since 1991, successive governments, across political parties, have successfully carried forward the country's economic reform agenda. Most of the central government industrial controls were dismantled. Massive deregulation of the industrial sector was done in order to bring in the element of competition and increase efficiency. The list of industries reserved solely for the public sector -- which used to cover 18 industries, including iron and steel, heavy plant and machinery, telecommunications and telecom equipment, minerals, oil, mining, air transport services and electricity generation and distribution was drastically reduced to three: defense aircrafts and warships, atomic energy generation, and railway transport. Further, restrictions that existed on the import of foreign technology were withdrawn.

Before the reforms, trade policy was characterized by high tariffs and pervasive import restrictions. Imports of manufactured consumer goods were completely banned. For capital goods, raw materials and intermediates, certain lists of goods were freely importable, but for most items where domestic substitutes were being produced, imports were only possible with import licenses. The criteria

for issue of licenses were non-transparent; delays were endemic and corruption unavoidable. The economic reforms phased out import licensing and also to reduce import duties. Israel's exports to Asia grew substantially throughout the years, relative to all other export destinations. Figure 4.1 shows Israel's Exports Shares by Destination Region.

Figure 4.1: Israel's Export Shares by Regional Destination



Source: The Observatory of Economic Complexity, MIT

Financial reforms which emphasized liberalization, including the interest rate and reserve requirements, has made India's financial industry globally competitive.

The financial system has been deregulated and opened to international financial markets, and employs derivatives and other modern innovations.

4.2. Israel Exports through the Prism of a Gravity-Model

Recently, Israeli Exports to Asia has surged, then stayed stable with the US; but exports to most of Europe sharply declined. The "gravity" model helps explain these trends.

Like the force between two objects in physics depends on the product of their masses and the distance between them, so trade between two countries is thought to depend on their economic mass (GDP) and all frictions affecting trade, including transport costs and policy variables. The theoretical and empirical foundations of the "gravity" model have been solidified in recent years by Eaton and Kortum (2002), Anderson and Van Wincoop (2003), and Helpman, Melitz and Rubinstein (2008)[41]. The Shifts in trade between Israel and Southern East Asia are likely to be a direct consequence of the policy transformation in China and India economies that can be captured via the "gravity" effect: the increasing economic

[41] While economists have been estimating gravity equations on bi-lateral trade data, the theoretical foundations of these equations had been sketchy and only recent work has provided satisfactory formulations. See the recent survey by Head and Mayer (2016).

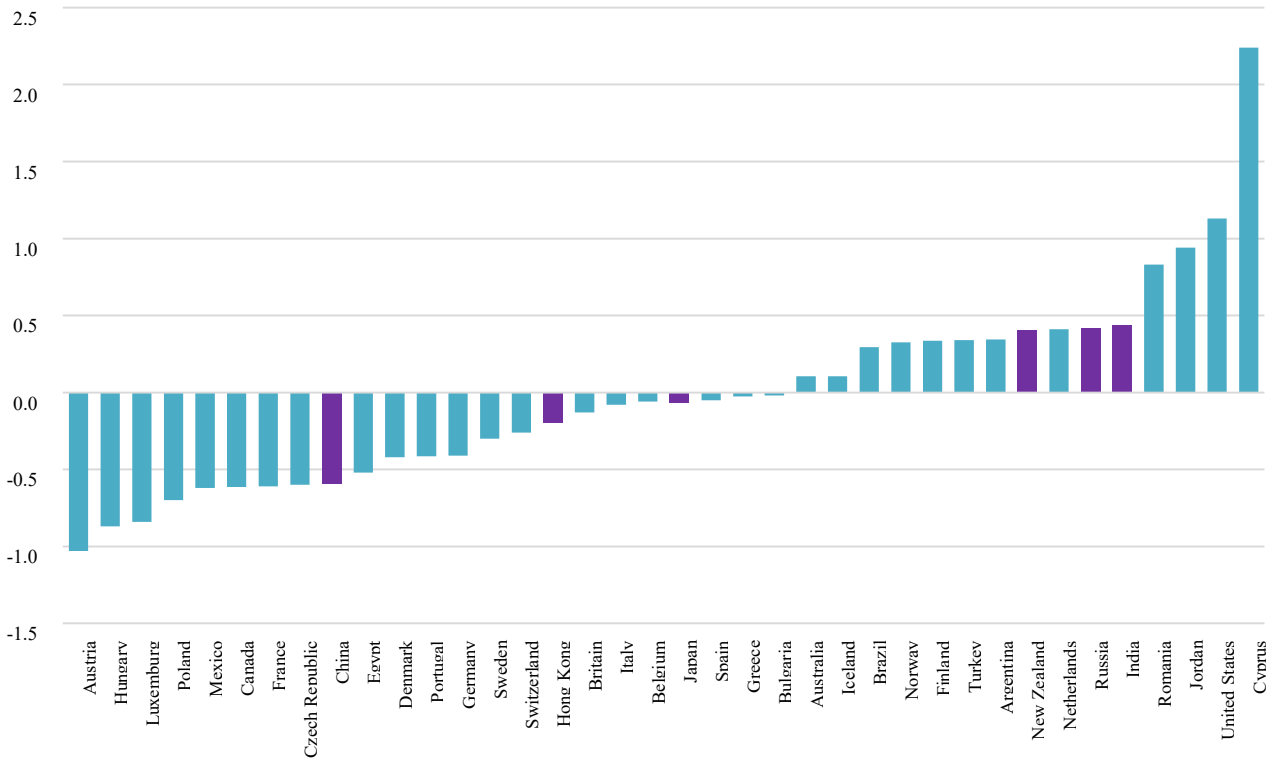
"mass" (GDP) in Southern East Asia coupled with the tearing down of the border restrictions (as indicated above).[42]

Mohar (2009) studied the share of Israel's goods exports in the total imports of the destination country, by using a non-structural gravity model. The main explanatory variables in the destination country are: GDP (representing the market size), GDP per capita (representing the buying power of the average individual), distance and a dummy variable representing whether or not there are trade agreements between Israel and the destination country. The sample period is 2001-2008.

Figure 4.2 describes the excessive/deficient shares, above or below what is predicted by the gravity model. Exports to China are under- predicted, while exports to the US are over- predicted. The gaps predominantly reflect missing variables such as lagged exports (the gravity model is static), measurement errors associated the date and scope of bi-lateral trade agreements, and the heterogeneity of the good composition of the destination-country imports.[43]

[42] For an analysis of China's trade with WTO members, see Mattoo and Subramanian (2011).
[43] Israel's export share is especially high in countries that import electronics, chemicals, and communication equipment; industries in which Israel has a significant comparative advantage.

Figure 4.2 Differences between the Gravity Model Predictions and the Actual Share of Israel Exports in Trading Partners' Imports*, percentages



*Countries without a trade agreement with Israel are emphasized.

Source: Mohar, BOI, 2009

4.3. Concluding Remarks

The global economy has been changed since China decided to abandon autarky in favor of export led growth and India liberalized its trade. Israel, like other export nations, is pivoting towards East Asia emerging markets.

The gravity models have been a workhorse in analyzing the determinants of bi-lateral trade. A non-structural applied to the trade between Israel, Europe and the US (Israel's traditional trading partners), as well as East Asia (Israel's emerging trading partner) indicate the importance of East Asia to the export led growth of the Israeli economy; and the more sustainable growth in the decades to come.

5. Looking Through a Rear-View Mirror

The political "change of guards", the so called "Maapach", was a game changer for economic policy in Israel. The newly elected populistic government abruptly switched away from a regime maintaining fiscal discipline (to a large measure), underpinned by a fixed exchange rate shielded by capital controls. The new government embarked on a non-sustainable path of fiscal expansion and accommodating monetary expansion. Capital controls were lifted without replacing them by prudent financial and monetary regulatory measures. The Bank of Israel had continued to intervene in the foreign exchange market on a day-to-day basis. A massive wave of capital flight caused a fast depletion of the stock of international reserves. As we learned from the first-generation currency crisis literature, inconsistent set of policies become quickly unsustainable; leading to massive speculative attacks on international reserves, and to rounds of financial crashes.

One may recall the open economy tri-lemma; asserting that a fixed exchange rate regime and perfect capital mobility must erode the ability of the central bank to stabilize employment and price fluctuations. Therefore, Israel lost control over inflation.

The ensuing hyper-inflation crisis brought about major political rebalancing towards the political center. The newly-established Unity Government ("Likkud" plus "Avoda") implemented key stabilization measures which required political consensus.[44] A new legislation ("Khok Hahesderim") allowed the government to exercise tighter control over its spending and taxation. A new law forbade the Central Bank to monetize the budget deficit ("Khok Iee Hadpassa"), and brought an end to the accommodating monetary policy. A Tri-Party agreement between the government, the Federation of Labor ("Histadrut") and the association of private sector employers, stabilized the wage-price dynamics and enabled a sharp nominal devaluation that ended in a competitiveness-boosting real devaluation. The exchange rate change had no immediate repercussions onto wages and prices, because the entire macro regime changed.[45] Some of the macroeconomic and the institutional changes, brought about by the inflation stabilization have lasted until these very days. The hyperinflation *cum* financial collapse episode has not

[44] For an historical account of the stabilization policy, see Razin and Sadka (1993).
[45] The conceptual framework whereby a change in monetary and fiscal regime help conquest inflation bulges is in Sargent, (2009).

reoccurred. Thanks to more disciplined monetary and fiscal policies, and well-regulated banks, the inflation rate converged to low rates, enjoyed by the advanced economies during the Great Moderation era.

In contrast, inflation stabilization programs adopted by other developing countries, especially in Latin America, proved not to have similar long term stay. Argentine's stabilization program, relying on a rigid currency-board setup as its major pillar, was different. A lack of adequate budget discipline and importantly inadequate bank regulations, were some of the major weaknesses of the program. With a sovereign debt crisis and international capital flow reversal, "all hell broke loose". The abruptly collapsed currency board and the run on the banks created a severe liquidity shortage. Sovereign debt default ensued. Argentina has been cut off from the international capital market. More than 10 years later, prices are still not stabilized and the country is only recently allowed better access to the international capital markets. Chile's stabilization program, however, had long-lasting outcomes, similarly to the Israeli program.

In contrast to the crisis-management experience in Latin America, the Asian crisis has been a game changing event that put the Asian Economies (particularly South Korea and Indonesia) on a durable growth track. To a large measure, the

post-crisis Asian financial and monetary institutions restructuring enabled the entire region to escape the 2008 global crisis.

To sum up, the moderating spillovers from the advanced economies during the Great Moderation, the global information technology revolution, the influx of skilled immigrants from the former Soviet Union, the gradual buildup of robust and well-regulated financial institutions over decades after the hyper-inflation crisis, and the deep and extensive integration into the global economy, all provided the Israeli economy with the entry "ticket" to the OECD; the 35-member group of the world advanced economies. However, it came at the cost of growing income inequality.

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