The Turkish Economy, Post-2001 Crisis:

Why Timing, Faith, and Expectations Matter

Megan Chen, Ming Li Chew, Sanya Goyal, Muzoon Matar, and Zeynep Yavuz

This paper offers a macroeconomic investigation regarding the stabilization of Turkey’s economy following the crises it experienced in the late 20th century when Turkey began to liberalize its economy. In the early 2000s, following decades of chronic inflation, Turkey succeeded in lowering its inflation rate to unprecedented levels. But what caused the crisis, how did the Turkish economy recover so well from it, and how did Turkey manage to combat mounting inflationary pressure? The 2001 crisis was caused by structural problems, namely bad debt management and poorly run public and finance sectors, which were detrimental to consumer confidence. After analyzing key data and conducting surveys of literature on this subject, we conclude that the success of Turkey’s stabilization program is due to a binding and abrupt regime change. This demonstrates the rational expectations model, emphasizing the importance of timing and credibility of a well-implemented program. Finally, we study the relationships between inflation and other macroeconomic variables, and conclude that inflation growth rates remained impressively low despite unanticipated economic shocks.

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1 Megan Chen, Ming Li Chew, Sanya Goyal, Muzoon Matar, and Zeynep Yavuz are members of the class of 2015 at the University of Chicago.
“I think the most important and priority problem in 2002 is going to be inflation. We are rolling over our debts, there's no problem in current accounts, we have started a slight recovery, but will we be able to curb inflation to 35 percent? Will we be able to halve inflation, which is 67 percent in 2001?”

- Turkish Economy Minister Kemal Dervis (2001)

Introduction
Research question

Turkey began implementing liberalization models in the 1990s. During this period, Turkey experienced multiple crises that created and subsequently exacerbated inflationary pressure. This paper seeks to address and assess the relative effectiveness of policies implemented after the 2001 financial crisis.

Our Project

This research consists of three parts: the first part aims to identify the major causes of the 2001 Turkish Crisis by analyzing key macroeconomic indicators and Turkey’s political environment between 1990 and 2001. The second part focuses on the policies implemented during the post crisis period from 2001-2006 to target inflation and fragilities present within the banking sector. The third part of this paper interprets economic data from 2004-2010 in order to explore the stabilization of the primary variable inflation/CPI and its correlation with other macroeconomic indicators.

Methodology

We first compiled data on the Turkish economy by referring to databases such as Federal Reserve Economic Data (FRED), World Bank, Organization of Economic Co-operation and Development (OECD), TURKSTAT, International Labor Organization (ILO), Central Bank of Turkey (CBRT), International Monetary Fund (IMF) and the Turkish Undersecretariat.

We looked at several key variables that included the openness of the economy, the overnight interest rate, total external debt, current account balance, unemployment rate, real GDP growth, M1 money supply, consumer confidence index, net government debt, gross external debt, national debt, income share held by income groups in 20 percentiles, state owned enterprises and total exports.

These variables were trended and graphed in MATLAB prior to being analyzed. This research relies heavily on literature reviews of previously published research regarding the rise and fall of inflation in Turkey from 1990-2006. The main sources were ‘Inflation Targeting in Turkey’ (Hasan, Ersel, and Fatih Ozatay),
‘The Ends of Four Big Inflations’ (Thomas J. Sargent), Strengthening the Turkish Economy (Kemal Dervis), "Currency and Financial Crises in Turkey 2000 –2001: Bad Fundamentals or Bad Luck?’ (F. Gulcin Ozkan), among others.

Limitations of this Research

This research has some limitations. Firstly, a number of variables were not available on the aforementioned databases. These variables include central bank independence measure, real interest rates, the monetary base and statistics measuring social indicators such as censorship, freedom of speech, participation of women in politics, and human rights abuses. In light of the above shortcomings, our research may be relatively limited in its scope. The second limitation was the unavailability of data during certain years. This is due to the fact that data was comprehensively and reliably recorded after the Turkish crisis of 2001 - the topic of interest in this paper. A third limitation was the scarcity of literature to corroborate or contradict our analysis of the data, and our own restricted knowledge on topics such as the foreign exchange market and a pegged exchange rate regime, which played a significant role in the Turkish crisis of 2001.

General Overview of Turkey, Pre-2001 Crisis

Turkey experienced several economic crises during the 1990s. Many critics argue that the instability of the Turkish economy during the 1990s was due to a lack of implementing necessary legal and institutional reforms following the liberalization of the Turkish economy in the early 1980’s (see Ozatay and Sak, 2002, Ozkan 2005, Yeldan, 2002). Turkey was able to handle small crises during the last decade of the 20th century with relatively minor damages to the economy. Since no measures were taken to safeguard the economy against potential future crises in the future however, the vulnerability and instability of Turkish economy continued to grow.
Throughout the 1990’s, Turkey suffered chronic inflation ranging between 70-90%, as shown in Figure 1.1 (Ozkan, 2005). To combat such inflationary pressure, Turkey adopted a stabilization program in 1999 with the backing of the IMF. The program adopted was a pegged exchange regime, and the two essential requirements for the success of the program were tight monetary policy and the liberalization of the economy.

As shown in Figure 1.1, the stabilization program had a positive impact on Turkey’s economy during its initial stages. The inflation rate declined, and the interest rates on Treasury Bills fell from 90% to 40% (Ozkan, 2005). In November of 2000, however, about a year after the stabilization program was adopted, the Turkish economy experienced a liquidity crisis, which was further worsened by the severe depreciation of the Turkish Lira in February 2001.

The liquidity squeeze\(^2\) in November 2000 was a result of severely increasing interest rates. Despite the decreasing inflation due to the newly adopted stabilization program, interest rates started to fluctuate well before the crisis took place. While overnight interest rates fluctuated between 18.9% and 45.9% in April 2000 and between 13.6% and 38.8% in July 2000, interest rates fluctuated between 23.7% and 79.6% in September and peaked at 315.9% in November and 873.1% in December (Koch and Chaudhary, 2001). A record of the

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\(^2\) The liquidity crisis Turkey experienced was a result of the reduction in the general availability of loans and credit available for consumers and businesses in the bank reserves.
overnight increase in the interest rates is also shown in Figure 1.2. The rise in the interest rates made it more difficult for banks to sell holdings of government bonds and maintain liquidity. Due to the liquidity crisis, the fall in inflation lessened, and, as a result, Turkey was not able to reach its target level of inflation, causing the Turkish lira to become further overvalued.

**Figure 1.2 Overnight Interest Rates (Ozkan 2005)**

![Overnight Interest Rates, 1 November–26 December 2000](source: The Central Bank of the Republic of Turkey)

On February 21st, 2001, also known as “Black Wednesday”, Turkey experienced the most serious financial and economic crisis in its post-war history. A few days earlier, specifically on February 19th, a heated argument emerged between the Prime Minister Ecevit and President Sezer, during which Sezer threw the constitutional book at the Prime Minister and Ecevit warned ominously that “This is a serious crisis.” Many understood Ecevit’s statement to be admission of defeat by the Turkish government (Ozatay and Sak, 2002). And two days after this political clash the Turkish Lira collapsed. By the next month, it had lost almost half of its value. The economy proceeded to contract by 9% in 2001 (Ozkan, 2005).

The aim of this part of this paper is to identify the causes behind the 2001 Turkish crisis. It will be comprised of two parts: the first will display economic data between 1990-2000, which will show Turkey’s increasing trade-deficit and disproportional government borrowing; the second will analyze the crisis and explain how the fragility of the banking sector became the major cause behind the 2001 collapse of the Turkish Economy.
Liberalization of the Turkish Economy: Historical Background

Turkey has been transforming into a market economy since the 1970s. It is important to note, however, that a certain degree of government intervention still existed within the economy. This intervention came in the form of the government’s influence over the Central Bank’s decisions and its ownership of commercial banks. Starting in the 1980s, the Turkish government began to adopt guidelines that would minimize government intervention and liberalize their market model, currency and foreign trade (Koch and Chaudhary, 2001). As a result, foreign direct investment (FDI) in Turkey increased and its external balance of trade became a significant denominator in Turkish economy. Table 1.1 depicts the increases in exports, imports and FDI in the late 20th century in Turkey.

Table 1.1 (Koch and Chaudhary, 2001)

<table>
<thead>
<tr>
<th>Imports, Exports, and Net FDI into Turkey, 1970–1990</th>
<th>(Million Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>588</td>
</tr>
<tr>
<td>Imports</td>
<td>948</td>
</tr>
<tr>
<td>FDI</td>
<td>58*</td>
</tr>
</tbody>
</table>

* Total capital flow, both inflow and outflow.

Source: State Planning Organisation, Undersecretariat of Treasury.

In order to measure the significance of external trade, we analyzed the changes in the openness of Turkish Economy between 1970-2000. The openness of an economy can be measured by taking the total of exports and imports as a proportion of GDP. Figure 1.3 displays how the openness of the Turkish economy increased sharply after the government implemented efforts to liberalize the economy in the early 1980s. In line with this finding, the next section will analyze Turkey’s trade balance during the increase in the openness of Turkey’s economy.
Worsening of the Trade Balance and Current Account Balance

The trade balance of a country is defined as its exports minus its imports, and it measures the deficit between revenue from exports and payment for exports. The current account balance is another measure of a trade deficit, and it is the sum of trade balance, factor income and cash transfers. Figure 1.4 plots the changes in the current account balance in the last decade of the 20th century. As shown in Figure 1.4, we observe a decline in Turkey’s current account balance. The OECD’s 2001 Economic Survey of Turkey identifies the worsening of the current account deficit as one of the main sources behind the collapse of the economy (Ozkan, 2005). Table 1.2 provides the trade balance and current account balance records during the pre-crisis period. A sharp decline in both values becomes evident according to these variables. Specifically, the trade balance experiences a severe decrease in the year 2000. The reason behind the worsening trade-balance is the weak competitiveness of the Turkish Lira, and this will be explored in more detail in the next section.
Table 1.2 (Ozkan, 2005)


<table>
<thead>
<tr>
<th>Year/Quarter</th>
<th>Trade Balance</th>
<th>Current Account Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>−10,582</td>
<td>−2,437</td>
</tr>
<tr>
<td>1997</td>
<td>−15,358</td>
<td>−2,638</td>
</tr>
<tr>
<td>1998</td>
<td>−14,220</td>
<td>1,984</td>
</tr>
<tr>
<td>1999</td>
<td>−10,443</td>
<td>−1,360</td>
</tr>
<tr>
<td>2000 Q1</td>
<td>−3,794</td>
<td>−2,282</td>
</tr>
<tr>
<td>2000 Q2</td>
<td>−5,938</td>
<td>−3,265</td>
</tr>
<tr>
<td>2000 Q3</td>
<td>−6,253</td>
<td>−1,194</td>
</tr>
<tr>
<td>2000 Q4</td>
<td>−6,311</td>
<td>−3,024</td>
</tr>
<tr>
<td>2000</td>
<td>−22,341</td>
<td>−9,765</td>
</tr>
</tbody>
</table>

Source: Central Bank of the Republic of Turkey at www.cbtr.gov.tr

Figure 1.4 Current Account Balance

Source: International Monetary Fund

Table 1.3 displays Turkey’s imports, exports and FDI between 1990-2000. A reading of the table shows a continuous rise in the current deficit (Uygur, 2001). In 2000, the trade-deficit to GNP ratio exceeded its safe limit of 3.5%, correlating the rise in the risk premium of interest rates on foreign debt (Koch and Chaudhary, 2001). Table 1.4 shows that the ratio of monthly current deficit to foreign currency reserves jumped from 6% to 50% during 2000, signaling the occurrence of the second crisis in February 2001.
So, overall, not only was Turkey experiencing a worsening trade-deficit, it was also facing an increasing risk premium on interest rates for its foreign debt. According to Koch and Chaudhary (2001), the rise in the risk premium on interest rates was a result of the political instability Turkey experienced during the 1990s. During the last decade of the 20th century, Turkey had two presidential elections and four local elections that caused government expenditure to rise. Furthermore, Turkey had ten different governments in power between 1989 and 2000. Each shift in government interrupted previously adopted economic development and stabilization programs that inhibited steady improvements in the Turkish economy. As a result of political instability and uncontrolled public expenditure, both domestic and foreign debt increased (Koch and Chaudhary, 2001).
Weak Competitiveness of Lira

As mentioned in the previous section, Turkey experienced a trade-deficit due to the weak competitiveness of the Lira, as a weak competitiveness of a currency translates into weak competitiveness of exports. Since Turkey adopted the pegged exchange rate program, domestic inflation measures became a major determinant of the competitiveness of the Turkish economy. If domestic inflation increased at a faster rate than the foreign inflation rate, this would erode the competitiveness of the Turkish economy. This is because the fixed exchange rate cannot respond to necessary adjustments. As a result, the credibility of the peg declines (Ozkan, 2005).

If we look back to Figure 1.1, we see that, although the stabilization program has been successful in quickly decreasing the inflation rate from 90% to 40%, inflation still remained above the targeted inflation rate of the program. This became the major reason for the weakening of the competitiveness of the Lira.

Increase in the Debt Balances and Decrease in the Ability to Pay Debt

Figure 1.5 plots the total external debt balances of Turkey between 1990-1999, and it reveals an increase in Turkey’s external borrowing. Specifically, the total gross debt of Turkey rose from $4.5 billion in 1990 to $9.5 billion in 1999. What is disconcerting is the fact that Turkey’s short term borrowing increased drastically, not only foreshadowing problems within the banking sector but also on how Turkey’s ability to pay back its debt was fragile and unsustainable.
This can be shown by comparing Turkey’s short and long term borrowings, as presented by Table 1.5. Although both values seem to display an overall increase in 1997, there is evidence of a sharp increase in short term borrowings. Figure 1.6 plots the distribution of short-term debt between the recipients of the debt. The graph shows that most short-term debt was taken on by commercial banks. This evidence signals the fragility of the banking system in the 1990s, which will be discussed in the second part of this research.
Table 1.5 (Ozkan, 2005)

<table>
<thead>
<tr>
<th>Year</th>
<th>Change in Short-term Debt</th>
<th>Change in Long-term Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>4.05</td>
<td>7.28</td>
</tr>
<tr>
<td>1998</td>
<td>17.56</td>
<td>13.27</td>
</tr>
<tr>
<td>1999</td>
<td>10.63</td>
<td>5.65</td>
</tr>
<tr>
<td>2000</td>
<td>23.18</td>
<td>11.21</td>
</tr>
<tr>
<td>2001 Q1</td>
<td>−7.87</td>
<td>−1.13</td>
</tr>
<tr>
<td>2001 Q2</td>
<td>2.01</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Source: The Undersecretariat of Treasury at www.treasury.gov.tr

Figure 1.6 Distribution of Short-term Borrowing (Ozkan, 2005)

Turkey’s ability to service its debts can be measured by taking the ratio between debt balance and GDP, and the ratio between debt balance and exports. The first ratio measures the current capacity to pay back debt in absolute amounts and the second ratio measures the capacity of the Turkish economy to generate revenue to pay back its debts (Ozkan, 2005). Table 1.6 provides us with the aforementioned ratios and shows alarming declines in both ratios, implying that Turkey’s capacity to service its debt was steadily weakening. Furthermore, the table shows that the ratio between interest rates on borrowing and exports was also increasing. This measure once again shows the heavy burden placed on foreign currency earnings, especially in 1999 and 2000 (Ozkan, 2005).
Table 1.6 (Ozkan, 2005)

<table>
<thead>
<tr>
<th>Years</th>
<th>Debt Service/GDP</th>
<th>Debt Service/Exports</th>
<th>Interest on External Debt/Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>6.22</td>
<td>49.16</td>
<td>18.08</td>
</tr>
<tr>
<td>1997</td>
<td>6.46</td>
<td>47.29</td>
<td>17.47</td>
</tr>
<tr>
<td>1998</td>
<td>7.99</td>
<td>61.22</td>
<td>17.88</td>
</tr>
<tr>
<td>1999</td>
<td>9.89</td>
<td>68.89</td>
<td>20.50</td>
</tr>
<tr>
<td>2000</td>
<td>10.90</td>
<td>78.98</td>
<td>22.68</td>
</tr>
</tbody>
</table>

Source: The Undersecretariat of Treasury at www.treasury.gov.tr

Fragility of the Banking Sector

Turkey, as many other emerging economies, has underdeveloped bond and equity markets. Thus, capital transactions, inflows, and outflows are mediated by the banking sector. Despite the liberalization of Turkey’s economy, the banking system remained integral to the Turkish economy in the 1990s. Many argue that the weakness of the banking sector was the main contributor to Turkey’s macroeconomic instability during 1990-2000 and the stock market crash in 2001 (Ozatay and Sak, 2002, Ozkan 2005, Yeldan, 2002). Lack of proper regulation and institutional frameworks in the banking sector was an evident problem within the Turkish economy. (Ozkan, 2005) The lack of independence of the banking sector from the government became the major problem of the banking sector’s framework.

Corruption and Political Favoritism

The weakness of the banking sector was largely due to the corruption endemic within state run banks. The Turkish government used the state banks to distribute policies of preferential credits to favored groups. As a result, banks accumulated big losses that were paid by the Treasury in the form of government securities, thereby damaging the liquidity of these banks. An additional problem was the morally conflicting role of the Council of Ministers. The Council of Ministers had the right to decide on the entry and exit of banks. As a result, bank licenses were granted to politically favored individuals. And, since the political authority was acting under the pressure of banks, it was not able to take any regulatory actions (Ozkan, 2005). It is also important to recall the unstable political scene during the 1990s when the Turkish government was overwhelmingly composed of coalition parties. The political authorities had high incentives to use their power for political favoritism but no intention to apply corrective regulatory action, as it spelled short-term disadvantages for them. These problems highlight the necessity of an autonomous regulatory body for the banking sector.
Maturity Mismatches Between the Assets and Liabilities of the Banking Sector

Banks are defined as financial intermediaries that have mostly short-term deposits as liabilities and loans to businesses and consumers as assets (Koch and Chaudhary, 2001). When a bank’s liabilities exceed its assets, the bank becomes insolvent, and this was precisely the case during the 1990s in Turkey.

One key factor contributing to the insolvency of the banks was their practice of giving out short-term credit that was funded by foreign loans. The increase in short-term borrowings by banks has already been addressed earlier in this paper. Banks increased their consumer lending because the profitability of holding government securities declined due to the lower interest rates offered on government securities in 2000 (Ozkan, 2005). This increase is visible in Figure 1.7 that graphs the bank lending to private sector between 1990-2000.

Figure 1.7 Bank Lending to Private Sector (Ozkan 2005)

During the 2001 crisis, foreign creditors called their loans back due to the instability being experienced by the Turkish economy. As a result, domestic banks increased their purchases of foreign currency, thereby causing domestic currency reserves of Turkish banks to decrease and increasing the pressure on exchange rates. Although the government should have closed public sector banks that were in the red, these banks stayed open due to political reasons. Once again, the lack of an independent regulatory authority of the banking sector caused the budget deficit by increasing the debt stock. Furthermore, increased government borrowing from private banks also distorted the performance of private banks, since private bank reserves failed to finance the budget deficit caused by state-run banks (Koch and Chaudhary, 2001).
After the liberalization of the Turkish economy in the early 1980s, Turkey has experienced several economic crises and downturns. February 2001 was the most severe of these crises. A good understanding of the causes behind the 2001 crisis lays out the major fractures that were present in the Turkish economy. This crisis not only exposed the pervasive corruption present within the Turkish economy to the people of Turkey but also to the world. Thus, we have shown that the 2001 crisis was an outcome of the combined effects of unsound fiscal policy, corruption, government intervention in the economy, excessive debt, loss of competitiveness of the Turkish Lira and record levels of interest payments on borrowing. Structural reform of the financial sector was necessary not only to solve the 2001 crisis but also to put the Turkish economy on a successful path to prevent similar crises from occurring in the future.

Part II: Inflation Stabilization Programs and the Rational Expectations Model, 2001-2006

Strengthening the Turkish Economy

The vast number of crises experienced in Turkey pre-2001 are strongly tied to poor regulation and structuring of the public and financial sector, which were also necessarily entangled in a volatile political undercurrent. Attempts to reconcile these crises consistently took on a neoliberal approach, which often lead to more instability since these efforts were never properly regulated. This only served to hurt the credibility of the Turkish government’s economic programs (Ozatay, 2002). These premature and poorly executed implementations reveal the importance of timing in the propagation mechanism of rational expectations in the context of rising inflation rates.

The 2001 financial crisis was no different in that it was largely a result of political uncertainty and volatility. Six days after Black Wednesday, the government decided to float the Turkish Lira, which again shot up the overnight inflation rate to 4024.7% (Dervis, 2003). This uncertainty created a worsening situation for the banking system, leaving the Turkish economy in shambles. Due to the negative perception of the Turkish economy in the global financial markets, a buffer period was necessary before a formal inflation-targeting program could be implemented. The reforms following the 2001 financial crisis from 2002-2005 acted as this buffer period, formally known as Strengthening the Turkish Economy (Central Bank of Turkey). The aims of this program were to provide a strong backbone for the formal inflation-targeting program that would be introduced in 2005. The implicit approach, introduced in 2001, emphasized balancing the budget, increasing competitiveness and restoring faith in the market and the credibility of the Turkish economy. To do this, the program aimed to increase transparency and accountability in resource allocation within the public sector, strengthening and formalizing good governances to fight corruption, restructuring the banking sector and balancing public finances by instilling macroeconomic discipline (Ozatay, 2008). These lofty goals required frontloading structural reforms, that is, effectively implementing an abrupt regime overthrow in a timely manner to boost confidence.
As seen in the figure above, inflation peaked during the 1994 crisis and began to subside consistently in conjunction with the liberalization of the Turkish economy, experiencing a sharp decline after the implementation of the 2001 crisis programs, before finally stabilizing in 2005. This section attempts to explain the necessity of an implicit inflation targeting approach before a formal targeting approach could be introduced in 2005.

**Restructuring the Public and Finance Sectors**

The legal amendments necessitated a restructuring of the public sector, including state-owned enterprises, as well as reforming the banking sector. This included the privatization of previously state owned industries in Turkey’s economy that included civil aviation, Turk Telecom, sugar, tobacco, and natural gas (Central Bank of Turkey). Moving forward, these industries were no longer controlled by the state, increasing competitiveness and efficiency by relying on market prices in order to reduce waste. Lastly, there was a complete restructuring of the banking sector, which affected the state owned Saving Deposit Insurance Fund (SDIF) and private banks. This included consolidating and shutting down many low performing banks as well as letting go of employees who performed repetitive jobs.
The Banking Sector Restructuring Program was introduced in May 2001 and focused on heavily reforming state owned banks and increasing competition. The state-owned banks needed restructuring due to treasury debt they had accumulated, which was securitized by using government issued bonds. The state owned banks were merged into two main banks, retrenching a lot of employees with similar responsibilities and laying off inefficient labor in the hopes of allocating resources more efficiently (See Figure 2.2). Also, the management of these banks was transferred to a newly appointed autonomous Board of Directors to oversee prudence with sub-prime loans and to ensure transparency and accountability. SDIF banks underwent similar changes that included merging banks and cutting labor, both of which that had aided the private banking sector. This was paired with prudent capital requirements, including a strengthening of the banks’ capital base in order to ensure their ability to pay back liabilities (Ozatay, 2008).

Figure 2.2: The decline of state-owned enterprise 1984-2010

As seen in this figure, both reforms to the private and public sector significantly reduced state-owned enterprises and public sector employees, a trend that continued into the new millennium. This was a measure to ensure that public and private sectors were running efficiently while aiding competition within industries by reducing state-owned enterprises. By merging banks and cutting employees, the state increased reserves while sacrificing employment rates.
Balancing the Budget

Figure 2.3: Gross Government debt

Unsustainable public debt obligations skyrocketed during the 2001 financial crisis. In turn the hike in public debt led to a higher perceived risk of default which increased the real interest rate, placed upward pressure on the cost of borrowing and caused debt sustainability to go down (Ozatay, 2008). Thus legal reparations were necessary in order to balance the budget. During this time, 15 budgetary funds were closed and the central bank became completely independent in order to divorce itself from politics. To safeguard the economy from corruption, regulatory economic and social councils oversaw the implementation of reforms in order to increase transparency and accountability while managing public debt. During this time, exports significantly increased, in addition to the public sector reforms mentioned earlier, which reduced the number of government employees. This helped balance the budget by late 2006, as shown by the steady drop in gross public debt, as shown in Figure 2.3.
This figure shows the steep rise in exports in conjunction with the new liberalization model of Turkey, increasing openness to foreign trade and helping balance the budget deficit.

**Formal Inflation Targeting in 2005**

The buffer period directly following the 2001 financial crisis was necessary in order to restore confidence in the market and to boost expectations by creating more transparency and accountability in Turkish economic programs. Effectively, the implicit inflation targeting approach fully liberalized the Turkish economy by privatizing and optimizing the public sector. In 2005, following growth in consumer confidence, a formal inflation-targeting program was introduced. The new program acted as a more aggressive continuation of earlier reforms.

The central bank increased reserves by reforming the tax structure, i.e. collecting more taxes, reforming agriculture programs, and social security. In 2006, the Turkish Lira was redenominated by dropping the zeros in hopes of re-establishing credibility and improving consumer’s inflationary expectations by making the currency more comprehensible to consumers. This practice effectively improves consumer perceptions about future prices, which aids inflationary expectations, thereby helping stabilize price increases (Mosley, 2005). This was done concurrently with setting new inflation targets and setting up more regulatory
boards, including the Monetary Policy Committee, in order to increase the quality of both monetary and fiscal discipline, transparency, and accountability.

The Role of Expectations in the Economy

The economy was stabilized after the introduction of the formal inflation-targeting program introduced in 2005. This was only possible due to the frontloading structural reforms implemented in the public and financial sector while simultaneously balancing the budget as Turkey fully transitioned into a neoliberal model of monetary and fiscal policy in 2001. The introduction of neoliberal policies however coincided with the first major crisis of 1994, and disinflation programs were rarely sustainable, leading to more poorly implemented neoliberal policies, which perpetuated instability in the economy. Hence, after the 2001 crisis, the Turkish government first implemented an implicit inflation-targeting program that included a strict and thorough regime change that segwayed into a formal inflation reduction program in 2005, which truly stabilized the Turkey’s inflation rate. This implicit targeting was necessary due to the impaired credibility of the government’s economic programs from previous crises paired with low accountability and transparency. These structural reforms effectively depoliticized Turkey’s economy, which was often the main source of volatility in consumer confidence due to corruption, poor regulation, and inefficient allocation of resources in important sectors of the economy. The reforms accomplished this de-politicization by privatizing industry, setting stricter borrowing laws, and reforming the banking sector. The reforms also coincided with a restoration of sustainable confidence in the market, proving the effectiveness of rational expectations model. This explains how the reform program after the 2001 crisis was a necessary buffer in order to restore credibility and faith in the market before a strict inflation-targeting program, which finally served to stabilize inflation. In contrast to earlier reforms, a successful stabilization program in developing countries, given Turkey as a case study, necessarily combines a binding and abrupt regime reformation with the expectation that is widely believed to be successful. This emphasizes both the importance of timing and credibility of a well-implemented program.

The Rational Expectations model explains the inherent momentum of current-day inflation. That is, consumers expect high inflation due to the government’s current and prospective monetary and fiscal policy. It states that inflation responds slowly to isolated policy, and rather the momentum is a result of long-term government policy of large deficits financed by printing money at a high rate. Therefore, inflation can be stopped much more quickly than the momentum view allows as long as there exists a change in policy regime. This needs to be an abrupt change in government policy or strategy for setting deficits now and in the future that is sufficiently binding so that it may be widely believed (Sargent, 1981). This explains how the stabilization in Turkey occurred so rapidly. Since the frontloading of structural reforms in Turkey included the de-politicization of the economy, consumer confidence was positively affected by increasing the perception of accountability and transparency. The actual effectiveness of the accountability protocol is not as
important as the consumer perception surrounding these policies. Expectations matter so much because they are tied to future growth; they are, however, derived from past and current perceptions.

Part III: Inflation Relation to Other Macroeconomic Variables, 2004-2010

The following section will be concerned with analyzing the relationship between inflation and other macro-economic variables. This section provided many interesting and fresh insights into the Turkish economy - specifically underscoring the Turkish government’s commitment to controlling inflation in the face of both positive and adverse shocks.

Firstly, the fact that inflation remained stabilized since 2005 signaled progress in the Turkish economy. This is important because stable price levels do not only boost consumer and investor confidence, accelerating the success of any governmental programs to push Turkey forward. They are also an indicator that the Turkish government had become better equipped at predicting people’s rational expectations. As such, consumer and investor confidence along with the concept of rational expectations play a significant role in explaining the discrepancies between our observations of the Turkish economy and those of theoretical predictions.

Figure 3.1: Inflation/CPI and Unemployment Rate

Intuitively, inflation/CPI growth and the unemployment rate have no relation to one other. Although higher inflation levels may correspond to lower unemployment levels in the short-run because monetary growth does indeed have a positive effect on the economy, this does not continue in the long-run, because by virtue of being in the long-run, variables adjust in response to the economy-wide rise in prices and unemployment returns back to pre-inflationary levels. This theory is more commonly known as the Phillips Curve3.

In the context of the Turkish economy, we plotted both variables on the same graph to identify if this correlation holds from the years 1980 to 2010.

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3 The Phillips Curve theory states that there is an inverse relationship between inflation and unemployment in the short run (assuming that consumers do not have rational expectations),
As seen in Figure 3.1, there appears to be no particular correlation between inflation and the unemployment rate from the year 2000 to 2010. Specifically, unemployment increases drastically while inflation rate is stable around 2008, and inflation falls from 2002 to 2004 while unemployment rate is relatively stable.

**Analysis:**

As per our predictions and the Phillips Curve theory, inflation/CPI growth appears to have no correlation with the unemployment rate in the Turkish economy from 2000 to 2010 (Karahan, Colak, Bolukbasi, 2012). Economists Ozcan Karahan, Olcay, Colak, and Omer Faruk Bolukbasi, who focused on the Turkish Explicit Inflation Targeting Regime from 2006 to 2011 in their paper 'Tradeoff between Inflation and Unemployment in Turkey,' verify this through sophisticated mathematical computations and empirical evidence (Karahan, Colak, Bolukbasi, 2012).

For the majority of the past decade, the unemployment rate ranged from 10 to 15% of the total Turkish labor force, as shown in Figure 3.1. This is attributed to the large-scale privatization and consolidation of the banking and public sector, where public workers were laid off in an attempt to achieve greater efficiency in the economy, as discussed in the previous sections. Other factors contributing to high unemployment rates include burdensome labor regulations, such as very high tax wedges, high minimum
wages relative to productivity and the necessity to comply with additional regulations such as quotas for hiring disabled people, ex-convicts etc. (OECD, 2006).

**Figure 3.2: Inflation/CPI and Real GDP Growth**

Inflation/CPI and real GDP growth are positively correlated but not causally related. As is the relationship between unemployment and inflation, there is a trade off between inflation and GDP growth in the short run, as inflation spurs the economy if it is unanticipated, thereby increasing GDP. However, in the long run, prices adjust, and GDP returns to pre-inflationary levels. Effectively, there is no causal relationship between GDP and inflation growth.

As shown in Figure 3.2, there appears to be no particular correlation between inflation growth and real GDP growth from 2000 to 2010. Specifically, real GDP growth declines from 2004 to 2008 while inflation remains relatively stable.

**Analysis:**

In 2006, the GDP dropped drastically in response to adverse financial developments in the economy. In fact, Turkey was one of the most adversely affected countries (Ersel, Ozatay, 2008) because foreigners
maintained large positions in relation to the size of the local market (IMF, 2006). From May to June 2006, there was a rise in risk aversion among investors due to a fear that “increasing commodity prices, growing capacity utilization, and tightening labor markets” would accelerate inflation in mature markets (IMF, 2006).

Under the assumption of a closed economy without exports and imports, we would theoretically expect an increase in inflation during a decline in real GDP growth. This is because a decline in investment leads to a lower demand for the Turkish Lira, resulting in its depreciation, and thereby making Turkey more vulnerable to inflation. In fact, the new Turkish Lira in particular weakened by 22% against the US dollar in the last three weeks of May 2006 (IMF, 2006) because imports became relatively more expensive.

Nevertheless, there was no rise in inflation in 2006. This occurred because the Turkish Central Bank responded to the sharp depreciation of the Lira and added threat to inflation by raising interesting rates, which encouraged foreign investors to increase their savings in Turkish banks. As a result, the demand for the Lira increased, causing its value to appreciate while successfully reigning in the inflation rate. This act highlights “Turkey’s commitment to achieving its inflation aims” (IMF, 2006). It is also important to note, however, that Turkey launched its full-fledged inflation-targeting program in 2006, which had further diminished the threat of inflation.

**Figure 3.3: Inflation/CPI and M1: Money Supply**

Theoretically, inflation/CPI and money supply are expected to be positively correlated. This is due to the phenomenon where there exists “too much money chasing after too few goods” (OECD, 2006).
Comparing these two variables on the same graph between the years 1990 and 2010, there appears to be a particularly sharp increase in M1 growth followed by a sharper decrease of it during the time period of interest, i.e. from 2004 to 2010. On the other hand, inflation experienced small changes and remained relatively stable.

**Analysis:**

The sharp rise in the growth of M1 money supply is owed to the replacement of the Turkish Lira (The Lira) with the New Turkish Lira (YTL) in January 2005.

This change involved converting every million of the Lira to one YTL. Such a redenomination of currency helps to restore public confidence through a purely psychological effect (Mosley, 2005). This is because the changes are nominal and hence do not have any real effects on the economy. As discussed in Part II of the paper, low consumer confidence induces economic agents to use foreign currency, thereby depreciating the value of the Turkish currency. In light of this and the 2001 crisis, the Turkish Central Bank (TCB) sought to reduce Turkey’s vulnerability to potential inflationary pressures and threats by removing six zeroes in the Turkish Lira, reassuring citizens of the Lira’s worth and restoring consumer confidence.

This new currency led to an increase in the printing of money in an attempt to replace the old Lira bills in the economy. Interestingly, however, although money supply growth spiked in 2005 and reached its
peak at nearly 85%, inflation growth rate remained very stable throughout these years. The success of this redenomination lies in its timing. With the right timing, “redenomination caps off high levels of inflation” (Mosley, 2005). The timing of the redenomination was rather appropriate in the case of Turkey, as the consumer confidence index had been dwindling until the beginning of 2005. This is revealed by the Consumer Confidence Graph that will be discussed next.

As for the sharp decline in M1 during 2006, we hypothesize that this was a result of measures taken by the TCB to ensure price stability. This is because the TCB may have feared that the previous year’s increase in money supply might have had severe inflationary implications, which could potentially be further aggravated by the strong depreciation of Lira and the adverse global economic conditions at that point of time. In fact, the TCB “acknowledged that the 2006 year-end inflation target of 5% (with an uncertainty band of +/-2%) would not be achieved (OECD, 2006). Hence, the large decline in money growth may have been in reaction to this expectation or could be seen as a measure that would contain this deviation. One of the ways in which the TCB went about to reduce the rate of M1 growth was “by abandoning its previous course of interest rate cuts and raising the short-term policy rate in three consecutive rounds by a total of 425 basis points, pushing the short-term interest rate up to 17.50%” (OECD, 2006). Higher interest rates correlate with lower M1 growth rate because higher interest rates encourage savings. This in turn leads to a reduction in the money multiplier effect4.

Figure 3.4: Inflation/CPI and Consumer Confidence Index

Theoretically, inflation/CPI and consumer confidence are expected to be positively correlated with a time lag. This suggests that higher GDP, characterized by high inflation, also boosts consumer confidence.

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4 According to Investopedia, the money multiplier effect is the expansion of a country's money supply that results from banks being able to lend.
Juxtaposing both variables on the same graph between the years 2004 and 2012, however, reveals a negative correlation between inflation and consumer confidence in the context of the Turkish economy. This could be due to Turkey's history of consistently high inflation that undermined the political credibility that the Turkish government and the TCB tried to build.

**Analysis:**

Figure 4 demonstrates significant fluctuations in consumer confidence between the years of 2004 and 2010: From 2005 to 2007, consumer confidence was rising; from 2007 onwards, consumer confidence fell sharply.

The reason consumer confidence rose from 2005 to 2007 was the redenomination of the Turkish Lira in January 2005. As explained in the M1 analysis, this rise in consumer confidence was a manifestation of consumers’ psychological expectations.

From 2007 to 2008, the large decline in consumer confidence could be attributed to the Turkish government’s announcement that it had missed its inflation target of 5% (OECD, 2006). This corresponds to the increase in inflation. While the concept of rational expectations is one of the main factors behind consumer confidence, other factors such as political instability and terrorism adversely affect consumer confidence too. In the context of Turkey, these factors include concerns regarding national elections and a bomb blast in Ankara that claimed 6 lives (BBC, 2012).

Interestingly, during the 2008 global financial crisis, Turkish consumer confidence rose tremendously until year 2010, exhibiting positive indices throughout. This restoration of consumer confidence stands as
measure and witness of the 2001 implicit and 2005 full-fledged disinflationary programs’ successes. While much of the world struggled to adjust and combat the economic crisis, Turkey coped relatively better. The principal reason was due to policies and initiatives that Turkey implemented, which managed to restore consumer confidence and eventually curb inflation.

It is also important to note that, recently, consumer confidence has recently declined. As of the end of 2012, it was at approximately 0.1. There is a lesson to be gained from this: Striving to increase consumer confidence is insufficient. Concerted efforts are also needed to further cushion the economy from unforeseen shocks.

As shown by the analysis above, it is challenging to determine a conclusive correlation between consumer confidence and inflation. This is because consumer confidence is significantly shaped by other exogenous factors such as political developments.

**Figure 3.5: Inflation/CPI and Net Government Debt (% of GDP) & Figure 3.6: Gross External Debt and National Debt**

Theoretically, inflation and debt are positively correlated because debt is usually financed by the printing of money. Hence, higher debt corresponds to higher money growth and, by extension, higher inflation growth rates.
This hypothesis is confirmed in the context of the Turkish economy between the years of 2001 and 2010: A steep decline in net government debt (from 75% of GDP in 2001 to approximately 35% in 2010) corresponds to a large decline in inflation growth.

**Figure 3.6**

Upon further examination of Turkey’s local and external debt, we find that they are negatively correlated, particularly so between 2008 and 2012. There are various possible reasons behind these trends, which we explain and analyze in the Discussion section.

**Analysis:**

With regards to Figure 5, the positive correlation between net government debt and inflation reflects the fiscal restraint that the TCB exercised as a part of the structural reforms it pursued in the wake of the 2001 crisis. These reforms involve strictly refraining from printing money in order to enhance the effectiveness of its disinflationary program.

The negative correlation between Turkey’s local and external debt in Figure 6 suggests that Turkey may have been financing its debt by borrowing from international agencies such as the IMF. The decline in local debt further underscores Turkey’s fiscal restraint and commitment to the structural reforms proposed by Dervis. Moreover, while growing international debt may have its adverse implications, analysis of these implications on the Turkish economy is beyond the scope of this research. In spite of the increase in international debt, it is important to note that, in May 2013, Turkey paid its last loan installment to the International Monetary Fund (Bloomberg, 2013).
Is Everything As Good As It Seems?

While Turkey has been successful in combating inflation, restoring consumer confidence and simultaneously ensuring economic growth, is everything as good as it seems?

Upon studying the above graph of income share held by different income groups, categorized in 20 percentiles, it seems that there is a wide disparity in Turkish society. The majority of the income share is captured by the top 20% group, while the second 20% holds merely around 12% of the income share. The last 20% has minimal access to income share in the Turkish economy at approximately only 6%. Although over the years the share of income held by the top 20% has been declining and that held by the other 20% groups has been rising, the move has been slow.

With regard to other socio-economic indicators, it appears as though one of the most pressing issues faced by Turkey is the treatment of women and their participation in both politics and the labor force. This can be owed to patriarchal and cultural factors inherent within the Turkish society (Kasapoglu and Ozerkmen, 2011). Domestic violence in particular seems to be a dominant issue in Turkish society, where police and courts regularly fail to protect women who have applied for protection orders under the Family Protection Law (Human Rights Watch, 2012) Another equally pressing issue is the restricted degree of political and economic freedom in Turkey, and this has manifested itself in the recent protests that have rocked Turkey’s capital, Istanbul, and the government’s aggressive response to these protests. Now that Turkey has
successfully subdued the threat of high inflation rates and dwindling consumer confidence, it should focus on other parameters of welfare in order to fit the bill of a truly robust economy.

Conclusion

After the liberalization of the Turkish economy in early 1980s, Turkey has experienced several economic crises, the most severe crisis occurring in February 2001. We have shown that the 2001 crisis was an outcome of the combined effects of economic factors, unsound fiscal policies and structural problems in the banking industry. This led to a lack of confidence in Turkish economic programs and thus structural reforms were necessary in an attempt to restore faith in the market. The period directly following the 2001 crisis from 2001-2005 saw the advent of a targeted approach to inflation by heavily reforming the infrastructure of monetary policy with a focus on restructuring public and financial sectors and balancing the budget. Implicit in these reforms were measures to increase transparency and accountability of the government while increasing competition, thus restoring consumer confidence. After this buffer period, the formal inflation targeting approach was implemented in 2006, which was a continuation of the programs from 2001, finally stabilizing the inflation rate. This shows the mechanism of the rational expectations model and how consumer confidence propagates inflation. The success of inflation stabilization can also be owed to the government’s opportune implementation of its policies and, more importantly, the government’s and Central Bank’s fiscal discipline and exemplary commitment to its policies in the face of many adversities. However, now that inflationary pressure has been successfully managed, the Turkish economy should address other pertinent issues such as high unemployment and other socio-economic factors such as human rights.

Addendum: The Way Forward for Turkey

Turkey’s ability to remain relevant in the future depends considerably on the perception of sustainability of economic programs, emphasizing the rational expectations model. There are, however, sufficient reasons to be optimistic about this issue. Having successfully stabilized the inflation rate in Turkey, future strategies of the Turkish government should place more emphasis on maintaining consumer confidence, not merely increasing it.

As seen from the graph below, future inflation targets appear stable at approximately 5%. This suggests that Turkey’s inflation-stabilizing program has been successful in the past and it will continue to strengthen in the future.
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Bibliography


