

ECONOMIC OUTLOOK

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RESEARCH

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Fed Comes Crushing Down

“A day may come when the courage of men fails, when
we forsake our friends and break all bonds of fellowship,
but it is not this day.

An hour of wolves and shattered shields, when
the age of men comes crashing down,
but it is not this day.”

(Movie Speech History)

“But it is not this day”.... Or is it? The Fed admitted as of yesterday that the US economy might indeed be in a liquidity trap-like situation, but that there was no avail. The ZIRP (zero interest rate policy) is likely to stay for a relatively long span of time, and that again was admitted by the Fed. The unusual FOMC short statement enumerates a number of measures pertaining to quantitative easing of all sorts. We figure the 2009 US fiscal deficit will not only exceed USD1 bn, but also the true scope of long-term fiscal liabilities inherited by the Obama team will become crystal-clear. Money printing is also over the counter. What was about to happen back in 2001 happened now, and the US economy could not evade the recession. Furthermore, it shook the entire world with it. We shall see the net effects of the Obama Plan like in mid-2009 and at this point whether the so many measures undertaken by the Fed and other central banks would work or not.

The Global Front: Two Scenarios

There exist two main scenarios for 2009 and beyond. First, recession will last another 6 months and by mid-2009 we shall see clear signs of recovery, albeit a slow and painful one. At that point equities should begin to perform on the basis of expectations. As financial indicators hit the bottom and prepare to turn up, as JPY turns loose again and trades over 115 against the USD, or weakens against the NZD or the EUR, or as commodity prices pick up, we shall see the likely cumulative impact of policy measures. The New Keynesian economic team of Obama is unlikely to assume full control before the end of Q1 2009. At the same time the so many-layered policy response of yesteryear's Fed will eat into the impulse response functions. The ZIRP may also have some bearing on mortgages at about the same time. Japan will probably be in a deflationary phase already, but in the other developed countries the inherited inflation stock will not permit deflation, save a temporary one. At about the time deflation would set in, credit channels should begin to perform. Recovery will be in sight in Q2 2009 and in 2010 return to positive growth will become pervasive. The crisis would have lasted almost two years. Of course, mortgage rates should follow the Fed easing, rescue packages should succeed, China should move on with stimulating policies, and credit channels should reopen. Fiscal packages, state intervention, nationalizations, rate cuts and quantitative easing may indeed function.

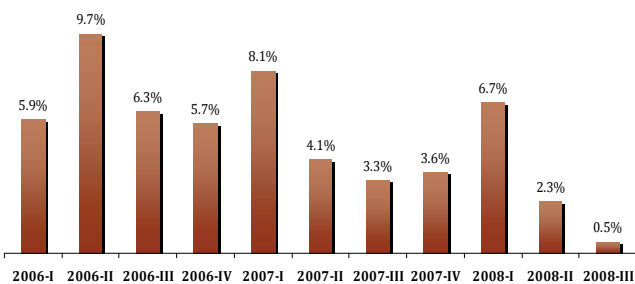
Another scenario could be the one that precautions are not useful. The Dollar appreciates but this is

neither a result of power of dollar nor of US economy's potential. Hefty dollar liabilities and the tendency to dollarize on the asset side explain the revival of the dollar in the recent months. Now, with the rate cut decisions from the Bank of England and the European Central Bank the dollar will continue to strengthen until the Fed fully eases to zero. Provided that the precautions cannot restore consumer confidence, mortgage rates do not follow Fed and the financing of bail-out plan deteriorate public finance significantly, divergence from dollar could be on the agenda in the medium and long term. If Obama was late, the recession dynamics would be sedentary and in case this process command on the expectations, all those precautions and monetary policy steps will fail. Should Obama turn out to be a Johnny-come-lately, recession dynamics would set in and drive expectations. In that case, monetary policy will be ineffective and a deflationary spiral will form. In this case, the light could be seen only in Q2 2010 and the tail of the infamous L-shaped Roubini curve would last further. Because deflation is only harmful if it is permanent, we refer to a lasting deflation, Japanese style, here. Otherwise, temporary deflations could even stimulate growth because they are analytically equivalent to tax rebates –since inflation is a tax. Falling asset prices, paralysed credit channels, deleveraging and economic recession may indeed cause deflation, but contrary to 1929 too many a measure has already been taken this time in a coordinated manner.

Slowdown in Growth

The Turkish economy grew by 0.5% in the third quarter of 2008 in contradistinction with the market consensus of 0.01% shrinkage. Therefore, positive growth pursued as in the last 26 quarters. But this is the lowest economic growth since 2001. Annual income per capita mounted to \$11.135. (Yearly average exchange rate is used.)

Annual Economic Growth Rates (%)



After 3.5% shrinkage in the second quarter, the agricultural sector became the engine of growth this quarter, growing by 2.2% in the third quarter. In line with global recession, industrial

production declined by 0.5% compared to the same period of the previous year. However, the recession affected the construction sector most severely. Deteriorating by 4.3% in this quarter, construction became determinant in economic growth figures. Nevertheless, 3rd quarter growth is higher than the expected level anyway.

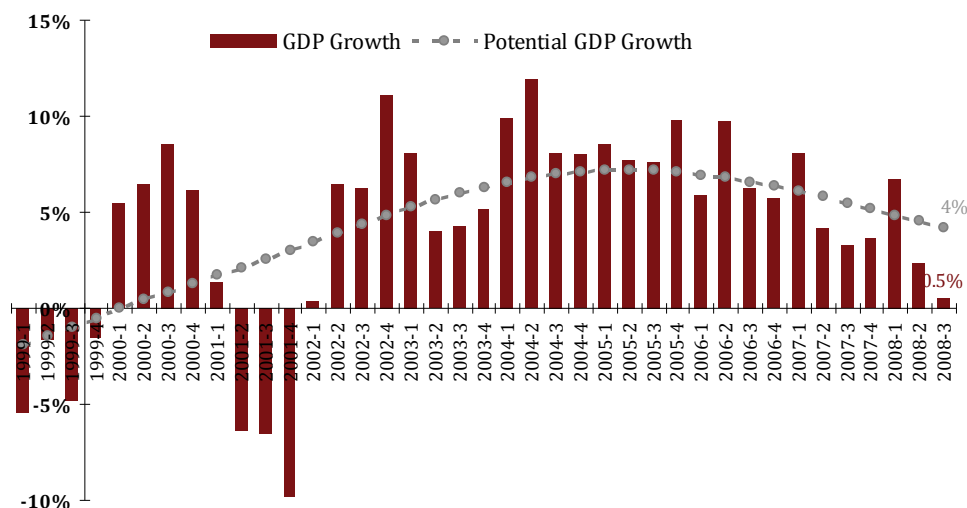
Using the production methodology, the highest growth occurred in financial institutions by 7.2%. Considering the expenditure side, the effect of the global crisis seems to be noticeable in private consumption which exhibits a negative growth after 26 quarters. Through the impact of municipal elections an increase is observed in public expenditures and investments by 7.7% and 22.2% respectively. Imports dropped by 4.2% while exports rose by 1.5% in the third quarter.

Growth	2007-I	2007-II	2007-III	2007-IV	2007	2008-I	2008-II	2008-III
GDP	8.1%	4.1%	3.3%	3.6%	4.6%	6.7%	2.3%	0.5%
Production								
Agriculture	-6.9%	-2.3%	-8.2%	-9.7%	-7.2%	2.6%	-3.6%	2.2%
Industry	10.2%	3.9%	4.3%	3.6%	5.8%	7.4%	3.7%	-0.5%
Construction	8.8%	7.5%	4.0%	0.5%	5.7%	1.5%	-0.2%	-4.3%
Trade	6.3%	2.4%	6.7%	6.6%	5.3%	8.5%	3.6%	-1.9%
Transport&Communication	8.4%	5.5%	7.2%	6.7%	6.9%	7.8%	4.0%	1.5%
Financial Intermediation	12.7%	7.8%	10.7%	7.8%	9.8%	8.8%	9.3%	7.2%
Spending								
Final Consumption Expenditure	5.6%	1.2%	6.3%	1.9%	3.4%	6.3%	2.8%	-0.2%
Resident Households	5.6%	1.6%	8.2%	2.9%	4.1%	6.5%	3.4%	0.3%
Non-Resident Households	2.8%	29.7%	46.9%	25.2%	-7.1%	0.5%	-11.1%	-8.6%
Resident's exp. in rest world	0.5%	4.9%	3.8%	4.0%	6.9%	-1.4%	-15.3%	-26.3%
Government Expenditure	4.7%	2.1%	3.3%	1.6%	6.5%	5.6%	-3.7%	7.7%
Government Investment	4.3%	8.4%	15.9%	2.2%	7.3%	-9.2%	-16.5%	22.2%
Private Investments	2.6%	0.2%	0.0%	8.1%	5.2%	12.1%	1.4%	-10.0%
Goods and Services Export	12.5%	9.3%	4.2%	2.5%	7.3%	12.2%	2.5%	1.5%
Goods and Services Import	8.6%	5.6%	14.4%	15.7%	10.7%	13.0%	0.9%	-4.2%

When contribution figures are examined, in the third quarter growth is supported by 0.7% and 0.3% contributions of agriculture and financial institutions on the production side while 0.9% and 0.7% contributions of public investments and expenditures upheld growth on expenditure side respectively. Comparing to 2007 third quarter figures, except agriculture, public expenditure and public investments all other items contributed negatively.

The negative signals of industrial production on growth were not noticed properly in Q3, with the help of agriculture, financial institutions and public expenditures&investments. The negative impacts of the global recession started to reverberated in private consumption, which will be felt more in forthcoming periods. We envisage Turkish economy will complete 2008 with a growth of 1.8%, assuming that Q4 growth will be -1.4%.

Contribution to GDP	2007-I	2007-II	2007-III	2007-IV	2007	2008-I	2008-II	2008-III
Production								
Agriculture	-0.3%	-0.2%	-1.2%	-0.7%	-0.6%	0.1%	-0.2%	0.3%
Industry	2.9%	1.1%	1.1%	1.0%	1.6%	2.1%	1.1%	-0.1%
Construction	0.6%	0.5%	0.2%	0.0%	0.4%	0.1%	0.0%	-0.3%
Trade	1.0%	0.4%	1.0%	1.0%	0.8%	1.3%	0.5%	-0.3%
Transport&Communication	1.3%	0.8%	1.0%	1.0%	1.0%	1.2%	0.6%	0.2%
Financial Intermediaries	1.3%	0.7%	1.0%	0.9%	1.0%	0.9%	0.9%	0.7%
Spending								
Final Private Consumption	4.1%	0.9%	4.5%	1.4%	2.4%	4.7%	2.0%	-0.2%
Government Expenditure	0.4%	0.2%	0.3%	0.2%	0.7%	0.5%	-0.4%	0.7%
Government Investment	0.1%	0.3%	0.5%	0.1%	0.2%	-0.2%	-0.4%	0.9%
Private Investment	0.6%	0.1%	0.0%	1.9%	1.2%	2.9%	0.3%	-1.8%
Goods and Services Export	3.0%	2.3%	1.0%	0.6%	1.8%	3.1%	0.6%	0.4%
Goods and Services Import	2.5%	1.7%	4.0%	4.9%	3.2%	4.0%	0.3%	-1.1%



The Rapidly Changing Banking Landscape

The banking landscape rapidly changes. Not only do we see signs of equilibrium credit rationing, but also NPLs rise at a very steep rate. Net NPL increase will amount to 100% year-on-year, but gross NPL rises are also very significant in the last two months. The average monthly new gross NPLs is TRY121 mn for the first nine months, but it jumped to TRY692 mn in the last two months. Should this pace continue over the next twelve months, the newly created NPL stock would amount to c.TRY8 bn in 2009. As percentage of 2008 net profits, the first nine months NPL rise amounted to 8% provision covering whereas at the new rate almost 45% of 2008 net profits would disappear as loan provision. However, provision coverage has been declining also, and assuming 70% provision coverage next year we come up with 39% of net 2008 profits wiped away under loan provisions in 2009.

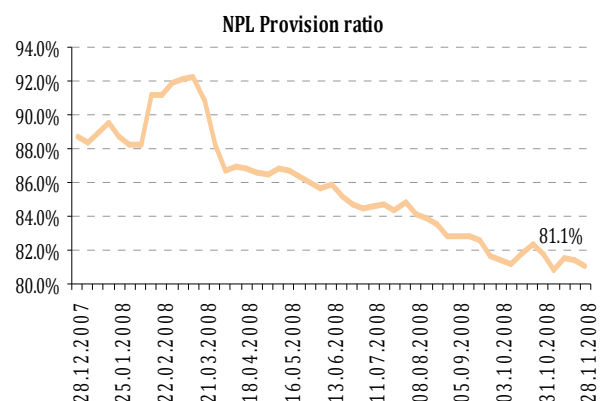
calculation concerning this issue. On the other hand, the system's liquidity ratio as measured by the BRSA is healthy with 163% -the minimum is 100%- and even with %65 rise in gross NPLs next year, the liquidity ratio stays around 160%, still. However, an NPL stock rise of this magnitude eats the CAR by almost 2

	Change in			Change in FX adjusted		
	Deposits		Deposits	Deposits		Deposits
	TR	FX		TR	FX	
Jan - Aug	26,074	16,165	42,237	26,074	14,756	40,830
September	18,897	1,202	20,100	18,897	-4,675	14,222
October	2,025	10,531	12,555	2,025	-13,465	-11,440
November	4,202	4,566	8,770	4,202	3,105	7,307

	Change in			Change in FX adjusted		
	Loans		Loans	Loans		Loans
	TR	Loans FX		TR	Loans FX	
Jan - Aug	44,933	15,117	60,049	44,933	14,264	59,197
September	8,572	6,395	14,968	8,572	2,545	11,117
October	-3,507	16,630	13,123	-3,507	-894	-4,401
November	-4,336	961	-3,375	-4,336	403	-3,933

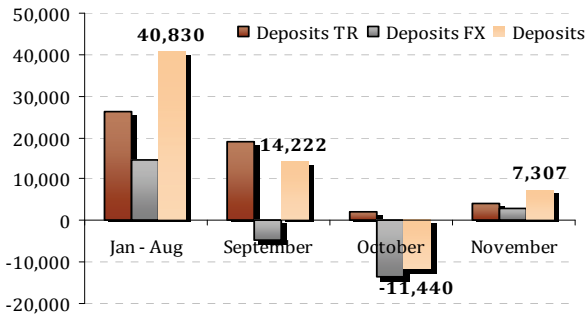
percentage points, pushing the system's CAR to around 13%, just above the threshold.

	BRSB Weekly Data - excl. participation 28.11.2008	BRSB Daily data - incl. participation 04/12/08
NPL gross	11,810	12,847
Loans	356,630	372,149
Monthly avg increase		
January-September	87	121
October-November	627	692
Estimates		
12 -months ahead NPL gross	7,524	8,304
NPL stock increase	64%	65%
NPL ratio (estimated)	5.1%	5.4%
%70 provisioning	5,267	5,813
2009 new loan provisions to 2008 net profit	35.6%	39.3%

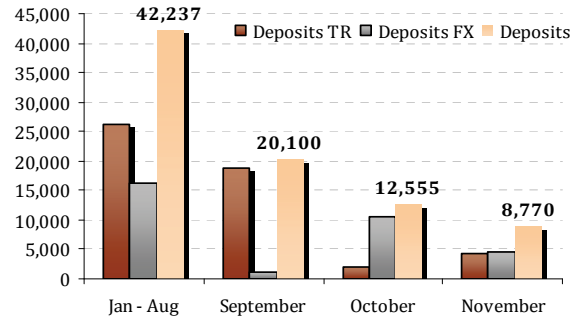


The table above shows a back of the envelope

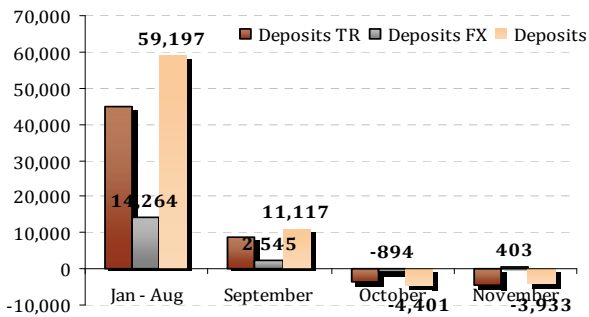
Change in Deposits (FX adjusted, million TRY)



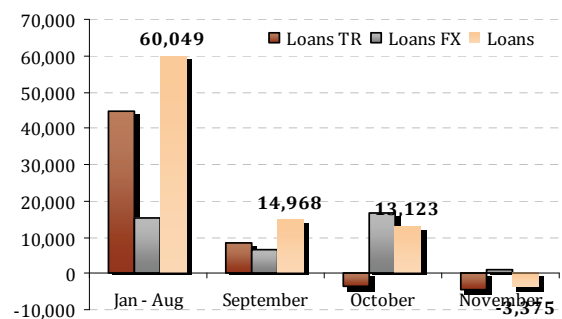
Change in Deposits (million TRY)



Change in Loans (FX adjusted, million TRY)



Change in Loans (million TRY)



Monthly changes (million TRY)

	NPL Gross	NP Consumer Loans	NP Credit Cards	NP Others (Corporate)	NPL Provisions	Provision ratio of monthly changes
January	39	114	-32	-43	-3	-7.7%
February	-224	63	78	-365	148	-66.1%
March	416	30	-23	409	20	4.8%
April	-401	44	0	-445	-532	132.7%
May	211	49	91	71	145	68.7%
June	128	86	-17	59	-20	-15.6%
July	281	84	175	22	195	69.4%
August	280	107	-5	178	79	28.2%
September	50	2	-5	53	-85	-170.0%
October	693	129	135	429	579	83.5%
November	561	117	121	323	383	68.3%

Monthly changes average (million TRY)

in the first 9 months	87	64	29	-7	-6	-6.8%
October - November	627	123	128	376	481	76.7%

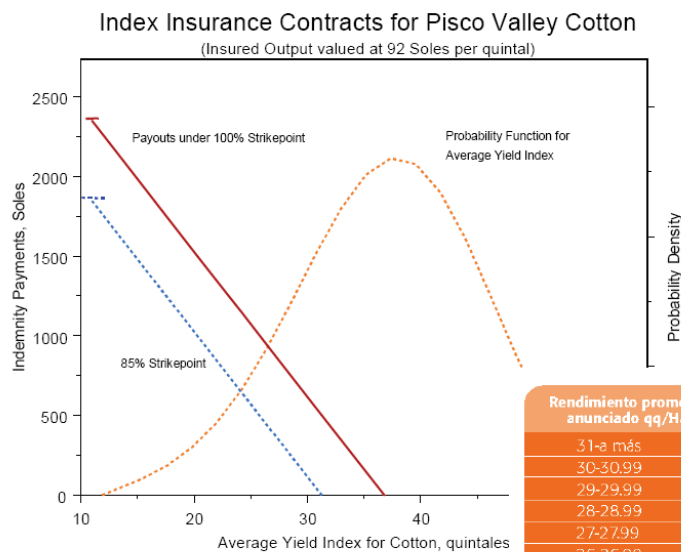
A Proposal

“Intrinsic market failures lead to outcomes that are “[not always] most agreeable to the interests of the whole society” (Michael Carter, University of Wisconsin-Madison). In other words, the invisible hand barely works in many instances, or does not work at all. Nowhere is this more realistic a description of market mechanisms than in the area of rural financial markets. Market failures cannot be overturned by fiat, but the structural conditions that shape them can be modified through human design. Now, Carter claims Index insurance is “promising and there is a role for public action”.

What could it possibly achieve? It could first and foremost relax cash constraints for insurance purchases and reduce the premium. Furthermore, it could help public information to be conveyed more easily. New contracts leaving way to newer partnerships would also be rendered feasible. The exhibit below provides empirical measures pertaining to an already set up example.

Risk –especially correlated risk- underlies the financial market failures that plague smallholder agriculture.

Correlated risk also undermines SME financing more often than not. Risk mitigation mechanisms (insurance) can potentially alter this financial market reality. It is not just a matter of stabilizing consumption with insurance, but also a matter of inducing financial market deepening and underwriting risk-taking needed for technological change and productive asset accumulation. Typically, the costs of acquiring and transmitting information are rather high in small income, low capital-induced enterprises and there exist many an information asymmetry, of which adverse selection and moral hazard, those that typically apply to insurance schemes, are the most striking ones. Moreover, there are multiple



Rendimiento promedio anunciado qq/Ha.	Indemnización por hectárea cultivada en S/.
31-e más	0
30-30.99	61
29-29.99	186
28-28.99	311
27-27.99	436
26-26.99	561
25-25.99	686
24-24.99	811
23-23.99	935
22-22.99	1,060
21-21.99	1,185
20-20.99	1,310
19-19.99	1,435
Menos de 19.99	1,435

sources of risk, much of which is correlated across individuals.

The resulting endogenous market failure displays a total absence of conventional insurance contracts more often than not, induce supply side lending portfolio restrictions for SMEs, and create the phenomenon of equilibrium credit rationing whereby the credit supply curve is converted into a backward-bending one. Demand comes into play in full symmetry, thus further aggravates the problem, and can be characterized by equilibrium risk rationing.

Fund-based credit utilization could be a response and in general public supply of financial services could provide a first answer. However, it is also possible to generate solutions within the market mentality and remedy the underlying market failure, especially if the public does not enjoy an informational superiority and risks into being trapped into a disappointing risk-return profile, causing public funds to be used up very inefficiently.

Hence, Carter says “The Index Insurance Hypothesis is that the removal of correlated risk with index insurance contracts will crowd-in credit institutions and credit supply, relax risk rationing and enhance demand, undercut destructive political economy and incentivize risk taking in production and accumulation.”

Even if one or two of these desirable features prove to be true, it is worth trying.

Index insurance does not require measurement of individual losses and makes common payments to insured based on the level of a single index correlated with losses. It bypasses problems that make individual insurance unprofitable for small scale lending because: (a) there would be no transactions costs of measuring individual losses. (b) It would preserve effort incentives (no moral hazard) as no single individual can influence the index. (c) Adverse Selection does not matter as payouts do not depend on the riskiness of those who buy the insurance.

Who would pay the insurance premiums? At least in the initiation phase, a public fund should pay the premiums in my opinion so the scheme takes off easily.

November Inflation

According to Turkstat November inflation data, consumer prices bid up by 0.83% monthly, at a slower rate than the market consensus (1.58%) and our forecast (1.30%) where the annual inflation reads as 10.76%. Analyzing November inflation figures, we observe that tumbling energy and commodity prices and declining domestic demand curtailed monthly inflation while the impact of fluctuating exchange rates remained bounded.

Among main expenditure groups, as season sales were not on yet, the highest monthly rise was observed in clothing and footwear group by 2.63%, as in the previous month. In November, while price increases in natural gas contributed by 0.20% to consumer inflation; this effect was mainly observed in the housing item, which rose by 2.08% becoming the major contributor to monthly (by 0.35%) and annual (by 4.11%) inflation. Housing has been the major inflation driver on an annual basis for the last 3 months. Housing inflation climbed to

24.73% year-on-year. This month the combined contribution of food and non-alcoholic beverages, clothing and footwear and housing items to annual inflation reached 0.76%. Meanwhile, the 0.59% decline in transportation item in the previous month, followed by 1.36% slump in November, caused monthly inflation to fall by 0.17 points.

Considering CPI indices with specified coverage, we observe a 9.49% fall in the H-index while the I-index up-surged by 7.39%. In November, producer prices decreased monthly by 0.03%, while the annual decline was 12.25%.

PPI- October (percentage change)					
	Weight	2008		2008 Contribution	
		MoM	Annual	MoM	Annual
PPI	100.00%	0.57%	13.29%	0.57%	13.29%
Agriculture	19.84%	-0.26%	4.95%	-0.05%	0.98%
Manufacturing	80.16%	0.76%	15.36%	0.61%	12.31%
Mining	1.62%	1.21%	25.03%	0.02%	0.41%
Production	73.33%	-0.05%	12.50%	-0.04%	9.17%
Energy	5.21%	9.72%	51.84%	0.51%	2.70%

Source: Turkstat, TSKB Research

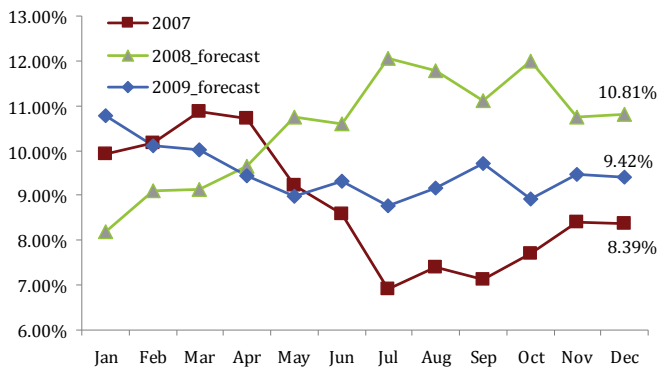
The consensus estimate had hit was 0.85% month-on-month. Monthly changes were -1% in the agricultural sector and 0.19% in industry. Communication equipment posted the highest

CPI-October (percentage change)					
	Weight	2008		2008 Contribution	
		MoM	Annual	MoM	Annual
CPI	100%	2.60%	11.99%	2.60%	11.99%
Food and Nonalcoholic Beverages	28.63%	3.91%	11.60%	1.12%	3.32%
Alcoholic Beverages	5.00%	0.01%	6.88%	0.00%	0.34%
Clothing and Footwear	8.07%	8.46%	2.83%	0.68%	0.23%
Housing	16.60%	3.79%	27.08%	0.63%	4.50%
Furniture	7.42%	0.39%	8.92%	0.03%	0.66%
Health	2.54%	0.04%	0.91%	0.00%	0.02%
Transportation	12.59%	-0.59%	9.02%	-0.07%	1.14%
Communication	4.30%	-0.04%	6.50%	0.00%	0.28%
Entertainment and Culture	2.81%	1.32%	3.71%	0.04%	0.10%
Education	2.24%	-0.22%	7.00%	0.00%	0.16%
Hotels, Cafes and Restaurants	5.64%	1.11%	14.38%	0.06%	0.81%
Other Services	4.16%	3.93%	11.36%	0.16%	0.47%

Source: Turkstat, TSKB Research

monthly reading by 10.51%.

Associating the fall in inflation to shrinking demand and tumbling oil and commodity prices, we foresee that revised inflation target path will be accomplished. Accordingly, the negative signals of industrial production data for economic growth will certainly bring a continuation of CBRT's rate cut process. After November inflation data, we predict 2008 end year inflation to realize as 10.81% and 50bp rate cut in CBRT meeting on December 18 while we predict 150 bp cut during the year 2009.



Current Account shows gratitude to oil prices

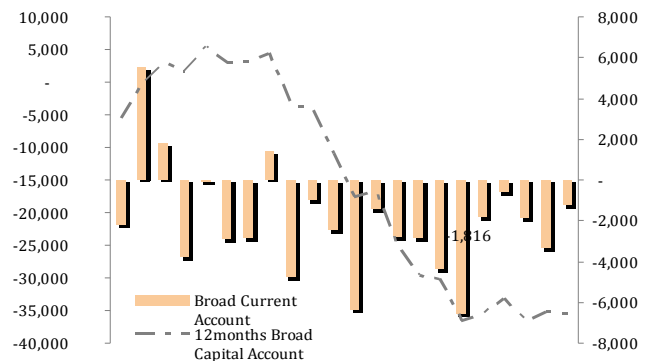
Turkish economy continue to exhibit low current account deficit particularly through depressing domestic and foreign demand and slumping oil and commodity prices, as well as the increase in shuttle trade and transfer revenues. According to CBRT balance of payments figures, the September current account balance demonstrated a deficit of \$914mn which corresponds to the half of the market consensus. TSKB forecast was \$1.4mn, being one of the lowest expectation among other institutions where the released amount was the minimum monthly figure since 2005.

September-Balance Of Payment				
Million USD	2007 Sep	2008 Sep	YoY	Oct'07- Sep'08
	%			
Current Account	-2,286	-914	-60.02%	-46,983
Goods	-4,009	-3,404	-15.09%	-57,612
Services	2,451	2,847	16.16%	16,255
Income	-912	-680	-25.44%	-7,850
Current Transfers	184	323	75.54%	2,224
Capital and Financial Accour.	4,944	1,299	-73.73%	51,404
Capital Account	0	0		0
Financial Account	4,944	1,299	-73.73%	51,404
Net Errors and Omissions	-2,658	-385		-4,421

Source: CBRT, TSKB Research

In January-September period, current account deficit mounted to \$35.4bn rising by 35.6% compared to the same period of the previous year.

Considering 12-month figures, current account deficit climbed to \$46.9bn. Moreover, according to broadly defined balance of payments, in September current account deficit realized as \$12bn where 12-month figure was -\$35.3bn.



The downturn in September mainly arose from falling foreign trade deficit due to global recession and decreasing energy prices. Despite the adequacy of the size of capital inflows to compensate current account deficit, the worries on foreign financing in coming periods bring the need of a stand-by agreement with IMF.

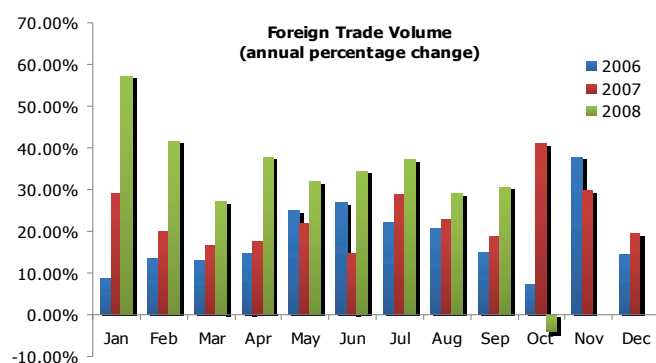
Global recession and the slump in commodity prices seem to be reflected on both export and import figures. In October, while exports declined by 3.1%, imports fell by 4.8% compared to the same month of the previous year. In this period, foreign trade deficit

Trade Balance- October				
Mln USD	Oct-07	Oct-08	% change	Sep-07- Oct-08
Capital Goods	-1318.4	-1153.4	-12.5%	-12345.0
Export	1175.8	1022.5	-13.0%	17471.1
Import	2494.2	2175.9	-12.8%	29816.2
Intermediate Goods	-6722.0	-6194.6	-7.8%	-89402.3
Export	4527.9	4931.1	8.9%	68782.8
Import	11250.0	11125.7	-1.1%	158185.1
Consumption Goods	2314.6	2047.7	-11.5%	26737.6
Export	4120.8	3602.9	-12.6%	49206.1
Import	1806.2	1555.2	-13.9%	22468.5
Others	-5.4	5.3	-198.2%	-124.7
Export	70.8	31.3	-55.7%	489.8
Import	76.2	26.0	-65.9%	614.5
Total Export	9895.2	9587.9	-3.1%	135949.8
Total Import	15626.5	14882.8	-4.8%	211084.3
Trade Balance	-5731.3	-5295.0	-7.6%	-75134.5

Source: Turkstat, TSKB Research

deteriorated by 7.6% falling from \$5.7bn to \$5.3bn. Furthermore, export-import coverage ratio realized to be 64.4% in October which was 63.3% in the same month of the previous year. The distinct indicator of the global recession was the slowdown in foreign trade volume which was not observed for a long time. Foreign trade deficit tumbled by 4%, being the first fall since 2002.

Lower than expected October foreign trade figures and the fall in energy prices continue to support the view of “low current account deficit” for the years 2008 and 2009. However, we think that it is necessary to pursue export figures carefully which possibly fall due to global crisis. Considering the last foreign trade data releases, we envisage the current account balance to GDP ratio to be 5.9% and 4.6% for 2008 and 2009 respectively.



2008 Budget Targets seem to be achieved... But what about for 2009?

In October 2008, budget revenues realized as 15.1bn YTL, while budget expenses were 15.2bn YTL. Therefore compared to the same month of the previous year, October 2008 budget balance fell by 31% and the deficit materialized to be 71bn YTL where the primary balance increased by 7.2% and exhibited a deficit of 1.94bn YTL.

Considering January-October 2008 period, the budget revenues climbed by 13% to 175.8bn YTL where expenses mounted by 7.4% to 180.7bn YTL. That is to say in 10-months period budget deficit realized as 4.9bn YTL actualizing 27.1% of annual budget deficit target. In the same period, primary balance materialized as 38.46bn YTL and exceeded the annual target by 461mn YTL.

In 10-month period, 81.17% of predicted appropriation of 222.5mn YTL for 2008 budget was used where 85.9% of revenues were obtained which was expected to be 204.6bn YTL.

In tax revenues, the expected problem due to the crisis has not been encountered yet. 82% of the tax revenue target was actualized in 10-month period.

In the previous month, Ministry of Finance

announced that the higher than expected monthly budget deficit figures were due to the shift of some revenue collections falling on Ramadan Feast to October and in spite of this the planned expenditures of October were realized in September. Accordingly, Ministry of Finance denoted the necessity to consider October data in order to comment on the budget deficit.

In October data, no significant change was observed for both revenue and expense items. Considering 10-month figures, 2008 year-end targets seem to be satisfied for both budget and primary balance. However, possible expenditures due to the municipal election in the coming year and the tendencies to increase GAP (South Anatolia Project) and other public investments as well as the possible rise in the purchases of goods and services and current transfers are all pursued accurately by both IMF and the markets for budget realizations in 2009.

Central Government Budget Realizations						
Central Government Consolidated Budget Performance	2007-October	2008-October	y-o-y (%)	Jan-Oct 2008	Jan-Oct 2008 Realizations	2008 Targets
EXPENSES	14,254	15,178	6.48%	180,655	81.17%	222,553
Excluding Interest	12,340	13,165	6.69%	137,305	82.44%	166,553
Personnel	3,744	4,147	10.76%	41,295	84.84%	48,672
Govn. Premiums to Social Security Agen.	457	496	8.47%	5,030	78.53%	6,405
Good and Service Purchase	1,675	1,760	5.05%	16,828	73.47%	22,905
Current Transfers	5,069	4,856	-4.20%	57,363	82.89%	69,207
Capital Expenses	958	1,326	38.39%	11,151	94.70%	11,775
Capital Transfers	80	223	177.89%	2,275	109.15%	2,084
Liability	355	357	0.45%	3,362	85.48%	3,934
Reserve Appropriation	0	0		0		1,571
Interest	1,914	2,013	5.14%	43,351	77.41%	56,000
REVENUES	14,152	15,107	6.75%	175,768	85.93%	204,556
Taxes	12,176	13,044	7.12%	140,321	81.96%	171,206
Enterprise and Ownership Revenues	293	299	2.02%	6,662	74.20%	8,978
Grants and Aids and Special Revenues	51	67	31.82%	713	88.98%	802
Other Revenues	1,063	1,176	10.65%	14,708	104.18%	14,118
Capital Revenues	20	17	-14.74%	8,274	192.12%	4,307
Budget Balance	-102	-71	-30.85%	-4,887	27.15%	-17,997
Balance Exclusive Interest	1,812	1,942	7.2%	38,464	101.21%	38,003

Source: Minister of Finance, TSKB Research

Market Efficiency and Volatility Analysis for Spot Oil and Copper Price

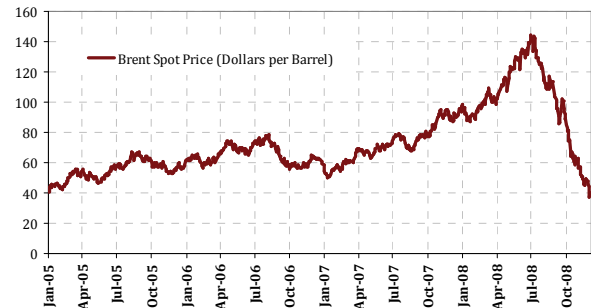
Global recession process continues to deteriorate economic growth figures particularly due to falling demand and worsening industrial production which eventually had a negative impact on oil and commodity prices such as copper. In this work, we will analyze the path of spot oil and copper prices during January 2005-December 2008 period.

In our analysis we will mainly check whether those markets are efficient* performing autocorrelation tests for oil and copper returns. Additionally we will examine the volatility characteristics of the returns with GARCH type models.

Oil Market...

Considering the oil market, we observe that after the prices mounted to its peak of \$143.95 in July; the upward trend is reversed. Oil prices slumped sharply by about 70%, hovering around \$45 nowadays. Despite OPEC's supply reductions in October, the expectations about narrower demand due to financial crises and its apparent result of economic contraction conduces this turndown. The graph of daily Brent oil spot price between January 1, 2005 and December 9, 2008 shows this process below.

Provided that the oil market is efficient and individuals are rational to evaluate, the price generated in the oil market will fully reflect all



available and relevant information received. In order to check this, we perform autocorrelation test of Box-Ljung Q-Statistics and found that oil market returns fail to reject the null hypothesis of no autocorrelation in 36 lags**, verifying market efficiency in the given period.

Lag	Q-Stat	Prob
1	0.239	0.625
2	0.448	0.799
3	0.834	0.841
.	.	.
.	.	.
.	.	.
34	53.040	0.020
35	53.529	0.023
36	54.289	0.026

This result denotes that the spot oil market returns are unpredictable and the prices are determined through random shocks. This somehow confirms the fact that the oil price is far less than it is anticipated to be four months ago, resulting in a downward revise in forecasts.

Despite the difficulty in price forecasting, it might be still possible to estimate the risk of the market by modelling the volatility of the oil prices with the help of GARCH-type models such

as ARCH, GARCH, TARCH and EGARCH.

Using E-Views we estimate those equations and choose the one having significant coefficients, maximum Log-likelihood and minimum AIC. Through this evaluation we select TARCH specification stated in equation (2) where σ_t^2 is the conditional variance of the series and the ϵ_t^2 is the square of the residuals obtained by regressing the returns of Brent Oil price (BR) on its lag. The estimated coefficients of TARCH are represented below:

$$BR_t = 0.000663 + 0.012337*BR_{t-1} + \epsilon_t \quad (1)$$

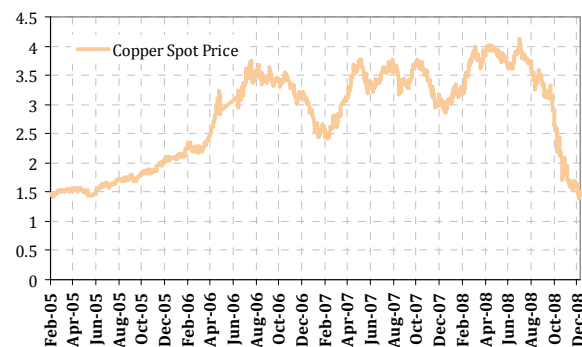
$$\sigma_t^2 = -0.0000171 - 0.028186*\epsilon_{t-1}^2 + 0.118065*\epsilon_{t-1}^2*(\epsilon_{t-1} < 0) + 0.932312*\sigma_{t-1}^2 \quad (2)$$

TARCH model indicates that the volatility of spot oil returns exhibit asymmetric behaviour which means good news and bad news have differential effects on conditional variance. According to this specification, while good news has an impact of -0.028186, declining the volatility, bad news has an impact of 0.089879 (sum of -0.028186 and 0.118065), increasing the volatility. Besides, the coefficient, 0.932312, in front of the lagged conditional variance implies that 93% of the previous period's variance is transferred to the present variance, which can be interpreted as high persistence (inertia) of the volatility in oil market. Consequently, despite it is not possible to estimate the future spot prices; it is feasible to decompose the news effect and the inertia effect on the conditional

variance of the prices.

Copper Market...

As a significant input to industrial production, copper was also affected negatively from global recession process. After climbing to \$4.1137 per pound in July 2008, copper prices tumbled by 64%, floating over around \$1.45 per pound nowadays. The decay in prices will likely to continue as demand falls further. Below, the graph of spot copper prices (\$/pound) is shown for the period January 1, 2005 to December 9, 2008.



The market efficiency of spot copper market is tested following the same methodology as in the oil prices. However, the results appeared to be on the opposite side (the probabilities are lower than 0.05), giving room for predictability of the prices.

Lag	Q-Stat	Prob
1	6.755	0.009
2	8.275	0.016
3	8.896	0.031
.	.	.
.	.	.
.	.	.
34	94.530	0.000
35	94.536	0.000
36	94.682	0.000

As price predictability seem possible, we model copper prices using ARIMA (p,d,q) process and then examine the volatility dynamics applying GARCH-type models.

Choosing the best fitted ARIMA model by evaluating AIC criterion, we end up with ARIMA (3,1,1) model shown below where CR_t indicates copper returns at time t.

$$CR_t = 0.00022 - 0.97809 CR_{t-1} - 0.1295025 CR_{t-2} - 0.110335 CR_{t-3} + 0.908551 \varepsilon_{t-1}$$

This model shows that 3 lags of copper returns have decaying negative effects in current copper prices where an outside shock have an impact of 90% in returns of copper price.

Analyzing the volatility of copper returns, we again encounter a different result compared to oil market. The volatility structure does not display an asymmetric behaviour and fits to GARCH specification which is shown by equation (1') and (2') below:

$$CR_t = 0.001037 - 0.77792 * CR_{t-1} + \varepsilon_t \quad (1')$$

$$\sigma_t^2 = 0.00000679 + 0.096364 * \varepsilon_{t-1}^2 + 0.891280 * \sigma_{t-1}^2 \quad (2')$$

According to GARCH model, the volatility of copper returns is mostly determined by the volatility of the previous returns, implying high inertia effect where news effect is found to be 9%.

In conclusion, we obtained results that indicate

efficiency for oil market and inefficiency for copper market providing possibility to predict copper prices. ARIMA model for copper returns analyses the historical time series data for the given period and have error terms definitely. However, it gives opinion for the own dynamics of the series econometrically.

In volatility analysis, we found asymmetric component for the volatility of oil returns while asymmetry was not present for the volatility of copper returns for the given period. The results also provide a general view of the decomposition of news and inertia effects for oil and copper returns.

*The market efficiency hypothesis mainly suggests that at a given point in time all available information is reflected to the price of the traded asset (Fama, 1970) and it is not possible to outperform the market continuously. Accordingly, the best estimate for the price of tomorrow is the price of today.

**Probabilities are higher than the critical level of 0.05 for all 36 lags.

Macroeconomic Forecasts

	2004	2005	2006	2007	2008E	2009E
GDP, current prices (TRY bn)	559.0	648.9	758.4	856.4	950.6	1,059.6
GDP, current prices (USD bn)	393.0	484.0	529.9	658.0	732.3	692.6
GDP Growth Rate	9.4%	8.4%	6.9%	4.5%	1.8%	1.0%
CPI (end-of period)	9.3%	7.7%	9.7%	8.4%	10.81%	8.40%
PPI (end-of period)	15.4%	2.7%	11.6%	5.9%	12.02%	7.03%
CPI (average)	8.6%	8.2%	9.6%	8.8%	10.50%	9.50%
PPI (average)	14.6%	5.9%	9.3%	6.3%	13.04%	5.49%
USD/TRY (end-of-period)	1.3363	1.3933	1.4056	1.1593	1.5400	1.5500
USD/TRY (average)	1.4221	1.4917	1.4317	1.3005	1.2980	1.5300
Real Interest Rate (ex-ante)	15.1%	7.5%	8.3%	7.0%	6.76%	7.20%
Nom. Interest Rate (end-of-year)	20.4%	13.8%	21.1%	16.6%	18.3%	16.2%
Nom. Interest Rate (average)	24.6%	16.3%	17.8%	18.3%	19.4%	16.8%
CBT Policy Rate (end-of-year)	18.00%	13.50%	17.50%	15.75%	15.75%	14.25%
CBT Policy Rate (comp)	19.70%	14.45%	19.12%	17.05%	17.05%	15.31%
Exports (USD bn)	63.2	73.5	85.5	107.2	132.0	130.0
Imports (USD bn)	97.5	116.8	139.6	170.1	220.9	212.0
Current Account Balance (USD bn)	-15.6	-22.1	-31.9	-37.7	-43.0	-32.0
Current Account Balance /GNP	-4.0%	-4.6%	-6.0%	-5.7%	-5.9%	-4.6%
Central Govt. Budget Bal/GDP	-5.2%	-1.1%	-0.5%	-1.9%	-1.3%	-1.5%
Central Govt. Primary Balance /GDP	4.9%	6.0%	5.5%	4.2%	4.0%	2.3%

Source: CBT, TURKSTAT, Treasury, TSKB Research

Macroeconomic Indicators

Macroeconomic Indicators-2008											
TSKB RESEARCH	CPI	PPI	Industrial Production	Capacity Utilization	GDP	Unemployment	Export	Import	Current Account Balance	Budget Balance	Primary Balance
	(%)	(%)	(%)	(%)	(%)	(%)	mln USD	mln USD	mln USD	mln YTL	mln YTL
JANUARY											
monthly	0.80%	0.42%	1.56%	80.5%		11.30%	10,639	16,339	-4,087	-524	3,759
cumulative	0.80%	0.42%	1.56%				10,639	16,339	-4,087	-524	3,759
annual	8.17%	6.44%	11.36%				111,346	175,809	-38,680	-7,788	37,682
FEBRUARY											
monthly	1.29%	2.56%	-2.73%	79.3%		11.60%	11,094	16,027	-3,824	1,021	5,735
cumulative	2.11%	3.00%	-1.21%				21,612	32,248	-7,911	497	9,494
annual	9.10%	8.15%	7.49%				114,783	180,453	-39,389	-5,214	40,527
MARCH											
monthly	0.96%	3.17%	8.05%	81.2%		10.70%	11,451	16,812	-4,202	-4,870	-117
cumulative	3.09%	6.26%	6.74%				33,042	49,040	-12,113	-4,373	9,377
annual	9.15%	10.50%	2.38%		6.70%		117,276	184,031	-40,569	-14,925	31,591
APRIL											
monthly	1.68%	4.50%	-0.66%	81.7%		9.60%	11,400	17,889	-5,065	-1,076	3,090
cumulative	4.82%	11.04%	6.03%				44,417	66,909	-17,178	-5,449	12,467
annual	9.66%	14.56%	6.26%				120,363	189,000	-42,347	13,952	33,649
MAY											
monthly	1.49%	2.12%	4.15%	82.4%		8.90%	12,478	19,268	-4,695	3,389	5,070
cumulative	6.38%	13.39%	10.43%				56,894	86,177	-21,873	-2,060	17,537
annual	10.74%	16.53%	2.37%				123,693	193,333	-43,458	-12,600	32,065
JUNE											
monthly	-0.36%	0.32%	-2.19%	82.3%		9.00%	11,768	19,472	-5,520	3,978	5,120
cumulative	6.00%	13.76%	8.02%				68,655	105,641	-27,393	1,917	22,657
annual	10.61%	17.03%	0.79%		2.30%		126,481	198,539	-45,861	1,909	22,671
JULY											
monthly	0.58%	1.25%	0.79%	80.0%		9.40%	12,597	20,553	-4,002	-3,317	4,119
cumulative	6.61%	15.18%	8.87%				81,252	126,194	-31,395	-1,400	26,776
annual	12.06%	18.41%	3.44%				130,140	203,878	-47,107	-3,327	40,919
AUGUST											
monthly	-0.24%	-2.34%	-8.02%	76.2%		9.80%	11,038	11,038	-3,053	6,010	14,150
cumulative	6.35%	12.49%	0.14%				92,290	137,233	-34,448	4,610	40,926
annual	11.77%	14.67%	-4.08%				132,441	208,377	-48,745	-846	55,069
SEPTEMBER											
monthly	0.45%	-0.90%	1.20%	79.8%	0.50%	10.30%	12,831	17,873	-914	-9,426	-4,404
cumulative	6.83%	11.48%	1.35%				105,121	155,106	-35,362	-4,816	36,522
annual	11.13%	12.49%	-5.49%				136,233	211,791	-46,983	-6,526	40,771
OCTOBER											
monthly	2.60%	0.57%	-4.37%	76.7%						-71	1,942
cumulative	9.60%	12.11%	-3.97%							-4,887	38,464
annual	11.99%	13.29%	-8.46%							-6,495	40,901
NOVEMBER											
monthly	0.83%	-0.03%		72.9%							
cumulative	10.52%	12.08%									
annual	10.76%	12.25%									
DECEMBER											
monthly											
cumulative											
annual											



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