

Survey Study in an Emerging Market: Crisis Expectation and Demographic Data

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Abstract

This study investigates the effect of demographic, political, religious and financial attributes of individuals' on their crisis expectation using a national survey. The survey was conducted by Konda between March 2010 and December 2016 monthly, each month *ca.* 2,600 individuals by face to face interviews. The findings of t-tests show significant differences in investors' crisis expectation with different attributes such as gender, education, religion. Regressions show BIST All and 100, unemployment rate and monthly CPI are significantly related to previous month's survey crisis expectation results. Demographics vary for crisis expectation choices.

Keywords: behavioral finance, crisis, emerging market, Turkey

JEL Classification: G01, G02

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INTRODUCTION

The financial crisis is a topic which searches answers in the widely documented literature. This study investigates the effect of demographic, political, religious and financial attributes of individuals' on their crisis expectation using a national survey with a predictive power linking these to the market return. The survey was conducted by Konda between March 2010 and December 2016 monthly, each month *ca.* 2,600 individuals by face to face interviews. The total sample consists of 200,000 different investor survey responses. Konda is a well respected private polling agency. In crisis periods risky assets become more risky and illiquid assets become more illiquid. Marsh and Pfleiderer (2013) work assumes that equity assets lose 40% of their value at 2007-2009 crisis period. The changes in the risk appetite will be reflected in the risk premium and liquidity of the assets and the average investor will be less interested in trading in higher risk environment. There are several studies that show investor sentiment, asset choices and demographics. Jacobsen, Lee, Marquering and Zhang (2014), Halko, Kaustia, and Alando (2012), Heimer (2014), Mugerma, Sade and Shayo (2014) use gender, marital status to explain investor behaviors.

Investor sentiment and the level of investment sentiment is an important determinant of the asset prices prior and post-shock environment. Hirshleifer (2001) sees a future in psychology based asset-pricing theory to be developed. Boz (2009) develops an open economy asset pricing model to show that the adjustment to negative shocks will be at a higher level, the more the optimism the investor sentiment prior shock for the emerging market sample of Argentina, Mexico, Korea and Turkey. Brown and Cliff (2005) evidence that sentiment affects asset valuation. Future returns over multiyear horizons are negatively related to sentiment. Bange (2000) reports when investors are bullish, they increase their equity holdings; when investors are bearish, they decrease equity holdings. De Bondt (1993) confirms that small investor sentiment moves with market prices. Naes, Skjeltop and Odegaard (2011) analyze a sample between 1947 and 2008 for US and additional Norwegian data between 1989 and 2007 and find a strong relation between stock market liquidity and the business cycle. Systematic liquidity variation is related to a "flight to quality" during economic downturns. Malmendier and Nagel (2011) show more recent return experiences have stronger effects, particularly on younger people.

Additionally, Shiller confidence index (since 1984) has been pointing to market moves and predictions before crisis periods.

The rest of the paper is organized as follows. The second section describes the data, the third section the method, and hypotheses. The fourth section reports the empirical findings and interpretation of results. In the final section the study is concluded.

DATA

The data consists of three parts. The appendix section shows the description and statistics of the variables. Table 1 reports the correlation matrix. Age and being retired are highly correlated.

[insert Table 1 here]

Detailed demographics is the first part consisting of gender, age, marital status, education, father's education, birth region, father's birth region, employment, household income, household (number of person), conservativeness measured with covering head, ethnicity, religion, religiousness. Most of the variables are available for the whole sample. The marital status information is only available for 15,875 individuals.

Second part is the crisis expectation of the person. This variable is a dummy variable and is equal to 1, if one person expects a crisis. This is available for 122,316 respondents.

The third part consists of all other questions about financial and political situation: TV (I watch or not), internet use, social media use, what kind of house they live in (apartment, house, etc.), if they get any help in the last month (municipality, government, etc.), region where the survey is performed, urban/rural, if immigrated within the country, which political party they would vote for today, which political party you voted previously, lifestyle (modern, conservative, etc.), could they get along with your expenses, do they expect a crisis in the coming months in Turkey, do they expect a crisis after the election in Turkey (if the survey was performed before an election period), do they expect a difficulty in their own life in the coming months, if there is any effect of this government's policies for your day to day expenses, their happiness or anger, in

their household if they have a car, income group, the life standards in Turkey has improved/worsened in the last 5 years. (likert scale of five), the person's life standard has improved/worsened in the last 5 years. (likert scale of five), the person's financial situation has improved/worsened in the last year. (likert scale of five). The use of internet, twitter, whatsapp are only available for 10,671 respondents.

Additionally I include the market and macroeconomic variables. Unemployment rate, stock market index for the 100 shares and all shares and consumer price inflation. I used several levels of lags for the regression estimates.

METHOD

I use different sets of OLS regressions; one to determine the effect of crisis expectations on macroeconomic variables and other; to determine the effect of the demographic variables on crisis expectation. A list of all dependent and independent variables and their descriptions are presented in the Appendix. In the first set of regressions, the dependent variables are the next month's consumer price index, Borsa Istanbul (stock market) composite index, Borsa Istanbul 100 index and unemployment rate and the independent variable is the average of the month's crisis expectation of the individuals surveyed. We specify the following empirical model in Equation (1):

$$Y = \alpha + \beta_1 X_1 + \varepsilon \quad (1)$$

In the second set of regressions the dependent variable is the crisis expectation of the individuals and the independent variables are the demographics and other personal attributes. We specify the following empirical model in equation (2):

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \varepsilon \quad (2)$$

Hypothesis 1: The lead month's macroeconomic variables' increase or decrease can be predicted from crisis expectation of the individuals of the previous month.

Hypothesis 2: The individuals' demographic characteristics and other attributes make a difference in their expectation of the next month's crisis probability.

Hypothesis 3: There are some group of investors who can predict the probability of crisis more than the rest of the investors.

RESULTS

The findings of t-tests in Table 2 show significant differences in investors' crisis expectation with different attributes.

[insert Table 2 here]

Female have higher crisis expectation than male. (supported by research that they are risk averse. Married individuals have lower crisis expectations than others. Religion has an effect on crisis expectation. Sunni people have lower crisis expectation. (99% of Turkish population is Sunni and they have lower education than others. That may show us, that the others are more pessimistic, or maybe more rational.) The older people are the less crisis expectation is present and this is valid for three different age groups I tested. Age 18-24 and other, age18-30 and others, age 18-35 and others. High school education results an increasing crisis expectation. If father is high school graduate, the people have higher crisis expectation. If a person is not conservative, they are more likely to expect crisis. (Most probably these are the people who are educated, higher income etc.) If a person expects difficulties and crisis in his own life, he is more likely to expect crisis. If a person is retired, he is less likely to expect crisis. If a person has a car in the household, he is less likely to expect crisis. If a person has facebook account, he is more likely to expect crisis. If a person does not use internet, he is less likely to expect crisis. If people work or do not work does not make any difference on crisis expectation.

I performed several OLS regressions of macroeconomic variables as dependent variables with the month surveyed mean of the crisis variable.

[insert Table 3 here]

Table 3 demonstrates one month lead of the macroeconomic variables' regression on crisis. Consumer price index, change of one month Borsa Istanbul all index, Borsa Istanbul 100 index, unemployment rate's one month lead variables as dependent variables are regressed on mean of the crisis variable. Interestingly, the results show that Borsa Istanbul is positively related to

increase in crisis expectation variable. Unemployment is positively related to crisis expectation and strongly significant.

Table 4 reports crisis on two different regressions with all surveyed people's demographics. When crisis is regressed with all surveyed people's demographics, the findings show females, if the person's father's high school and above graduates, people who do not have conservative religious view have higher crisis expectations. With this limited number of observations the people who use twitter are found to have higher crisis expectations. If the person is from Muslim sunni sect and if the person has higher income the individual expects less crisis in the future. The results are significant at 1% level. The number of observations decline as the marital status and using twitter variable is not available for all observations.

[insert Table 4 here]

I performed another set of regression with a high number of observations by excluding the variables with limited observations. In Table 5, when crisis is regressed with all surveyed people's demographics, the findings show that the crisis expectation increases with age but declines as the people get older. Females, if the person's father is high school graduate, people who are retired, who do not have conservative religious view have higher crisis expectations. If the person's father is high school graduate or above, if the person is sunni Muslim sect, when the household income becomes higher and if the person has a car the individual expects less crisis. The results are significant at 1% level other than age and being retired.

[insert Table 5 here]

CONCLUSION

The findings of t-tests show significant differences in investors' crisis expectation with different attributes such as gender, education, religion.

Regressions show BIST All and 100, unemployment rate and monthly CPI are significantly related to previous month's survey crisis expectation results. Demographics vary for crisis expectation choices.

Demographics are important determinants of peoples' crisis expectations. Previous research shows females have higher risk aversion and this study confirms the previous findings

as the female respondents are more inclined for crisis probability in the future. Higher income and being from Muslim Sunni religion, results lower crisis expectation, whereas the lower conservative the people are the higher the crisis expectation results. Twitter users, as probably they are more informed about the macroeconomics, have higher crisis expectations than the other respondents.

The next step is to determine the promptness of several group of respondents' expectations.

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Table 1: Correlation matrix

	age	age square	female	high school	father high school	retired	not conservative	sunni	household group	log (income)	car	use twitter
age	1.00	0.98	(0.03)	(0.36)	(0.12)	0.52	(0.19)	0.02	(0.21)	(0.06)	(0.03)	(0.34)
age square		1.00	(0.05)	(0.34)	(0.11)	0.56	(0.18)	0.01	(0.23)	(0.07)	(0.04)	(0.30)
female			1.00	(0.15)	(0.01)	(0.21)	0.11	0.01	(0.01)	(0.06)	(0.06)	(0.10)
high school				1.00	0.23	(0.09)	0.39	(0.05)	(0.09)	0.22	0.14	0.36
father high school					1.00	(0.05)	0.18	(0.03)	(0.05)	(0.00)	0.05	0.14
retired						1.00	(0.03)	(0.00)	(0.19)	0.00	0.00	(0.15)
not conservative							1.00	(0.24)	(0.14)	0.16	0.06	0.24
sunni								1.00	0.05	(0.01)	0.03	(0.08)
household group									1.00	(0.01)	0.04	(0.03)
log (income)										1.00	0.18	0.22
car											1.00	0.06
use twitter												1.00

Table 2: T-tests of the crisis variable with demographic variables

	female	N	mean	t.value	probability	Satterthwaite unequal variances
crisis	0	63,550	0.4678	-17.91	0.0001 ***	
crisis	1	58,503	0.5150			
married						
crisis	0	3,722	0.5559	7.72	0.0001 ***	
crisis	1	8,905	0.4807			
sunni (religious sect)						
crisis	0	8,952	0.7493	57.56	0.0001 ***	
crisis	1	113,000	0.4722			
age35						
crisis	0	69,503	0.4825	-8.04	0.0001 ***	
crisis	1	52,565	0.5057			
high school						
crisis	0	69,252	0.4636	-23.19	0.0001 ***	
crisis	1	52,411	0.5306			
father high school						
crisis	0	118,000	0.4918	-2.06	0.0397 *	
crisis	1	4,317	0.5078			
workok						
crisis	0	71,456	0.4915	-0.82	0.4141	
crisis	1	50,860	0.4938			
consno						
crisis	0	87,583	0.4288	-73.44	0.0001 ***	
crisis	1	34,733	0.6530			
youcrisis						
crisis	0	55,986	0.1943	-237.29	0.0001 ***	
crisis	1	63,388	0.7597			

Table 2: (continued)

	age24	N	mean	t.value	probability
crisis	0	103,000	0.4882	-6.83	0.0001 ***
crisis	1	19,433	0.5149		
age30					
crisis	0	83,759	0.4842	-8.52	0.0001 ***
crisis	1	38,309	0.5105		
retired					
crisis	0	107,000	0.4939	2.62	0.0001 ***
crisis	1	15,701	0.4820		
car					
crisis	0	47,628	0.5077	8.68	0.0001 ***
crisis	1	36,332	0.4775		
facebook					
crisis	0	5,096	0.4831	-5.25	0.0001 ***
crisis	1	5,284	0.5346		
nointernet					
crisis	0	5,226	0.4950	3.15	0.0016 **
crisis	1	2,696	0.4577		

Table 3: Regression of macroeconomic variables with crisis

lead1_tufemo	parameter	std. error	probability
intercept	(0.25882)	0.5753	0.6552
meancrisis	1.94810	1.1815	0.1070
obs.	42		
Adj. Rsq	0.0402		
<hr/>			
lead1_chgbistall	parameter	std. error	probability
intercept	(0.06380)	0.0427	0.1428
meancrisis	0.16228	0.0877	* 0.0715
obs.	42		
Adj. Rsq	0.0559		
<hr/>			
lead1_chgbist100	parameter	std. error	probability
intercept	(0.06696)	0.0448	0.1431
meancrisis	0.16916	0.0921	* 0.0736
obs.	42		
Adj. Rsq	0.0548		
<hr/>			
lead1_unemp	parameter	std. error	probability
intercept	7.02219	0.9540	*** <0.0001
meancrisis	5.81722	1.9592	*** 0.005
obs.	42		
Adj. Rsq	0.1601		

* 10%,** 5%,*** 1% significant

Table 4: Regression of crisis variable with demographics

crisis	parameter	std. error		probability
intercept	1.30820	0.1225	***	<0.0001
age	0.00429	0.0033		0.1967
age square	(0.00005)	0.0000		0.1634
female	0.03707	0.0168	**	0.0274
married	(0.01413)	0.0244		0.5626
high school graduate	0.01288	0.0198		0.5155
father high school	0.17736	0.0343	***	<0.0001
retired	(0.00193)	0.0273		0.9437
not conservative	0.17091	0.0193	***	<0.0001
sunni sect (Muslim)	(0.17730)	0.0319	***	<0.0001
log(incomeopen)	(0.10580)	0.0146	***	<0.0001
car owner	(0.01726)	0.0162		0.2853
use twitter	0.06897	0.0232	***	0.0029
obs.	4,041			
F value	24.80			
Adj. Rsq	0.066			

* 10%,** 5%,*** 1% significant

Table 5: Regression of crisis variable with demographics

crisis	parameter	std. error		probability
intercept	0.83479	0.0316	***	<0.0001
age	0.00322	0.0001	**	<0.0001
agesquare	(0.00003)	0.0000	***	<0.0001
female	0.03492	0.0043	***	<0.0001
high school graduate	0.00235	0.0050	***	<0.0001
father high school	(0.06746)	0.0120	***	<0.0001
retired	0.01943	0.0071	**	0.0058
not conservative	0.23387	0.0049	***	<0.0001
sunni sect (Muslim)	(0.20090)	0.0082	***	<0.0001
householdgroup	0.00307	0.0032		0.3354
log(incomeopen)	(0.04570)	0.0035	***	<0.0001
car owner	(0.02269)	0.0043	***	<0.0001
obs.	58,809			
F value	406.55			
Adj. Rsq	0.0705			

* 10%,** 5%,*** 1% significant

APPENDIX

Sample Statistics

Date: 2010-2016 data is monthly March 2010-December 2016

variable	n	mean	std. dev.	min.	max.	
female	200,322	0.48	0.50	0	1	female 1, male 0
age	159,580	40.26	14.82	13	98	if age is more than 98 then deleted.
age24	159,583	0.16	0.37	0	1	age between 18-24 is 1 else 0
age30	159,583	0.32	0.46	0	1	age between 18-30 is 1 else 0
age35	159,583	0.43	0.50	0	1	age between 18-35 is 1 else 0
agegr	159,583	2.12	0.80	1	3	age 18-28 equal to 1, 29-43 equal to 2 and 44+ equal to 3
edu	199,690	3.99	1.37	1	7	not literate 1, no degree knows write read 2, elementary school 3, 8 year education 4, high school 5, undergraduate 6, graduate 7
high	199,718	0.42	0.49	0	1	high school and above degree 1, else 0
fatherhigh	200,089	0.06	0.23	0	1	father high school and above degree 1, else 1
eduyr	199,690	8.12	4.22	0	17	number of years education
edigr	199,543	1.56	0.73	1	3	less than high school 1, high school 2, undergraduate 3
birthplace	182,986	6.63	3.47	1	13	region of birth
birthplacefence	181,533	36.57	20.94	1	83	city of birth according to licence plate
work	199,934	8.38	3.83	1	14	profession of 14 group
retired	200,759	0.13	0.33	0	1	retired 1, else 0
workok	200,759	0.41	0.49	0	1	working 1, retired, house wife, student, unemployed, not able to work 0
workgroup	199,523	3.14	1.41	1	6	senior 1, unskilled 2, retired 3, housewife 4, student 5, unemployed 6
incomhold	191,927	3.65	1.23	1	6	household income 6 groups 300TL (about 70 USD) and less 1, 301-700 TL 2, 701-1200TL 3, 1201-2000TL 4, 2001-3000TL 5, 3001+TL 6
incomopen	152,539	1.836	1.702	0	10,000	
incomholdgroup	152,539	3.82	1.27	1	7	new version by KONDA: household income 7 groups 300TL (about 70 USD) and less 1, 301-700 TL 2, 701-1200TL 3, 1201-2000TL 4, 2001-3000TL 5, 3001-5000TL 6, 5001-10000TL 7
bholdno	99,743	4.11	1.79	1	10	number of person in household, if more than 10 written as 10
bholdgr	161,466	2.05	0.67	1	4	number of person in household groups, 1-2 as 1, 3-5 as 2, 6-8 as 3, 9 and above 4
conservative	198,754	2.20	1.23	1	5	5 groups, 1 no headscarf, 2 headscarf, 3 more conservative headscarf, 4 burka, 5 single man
consno	200,759	0.28	0.45	0	1	if no headscarf 1 else 0
ethnicity	199,079	1.31	0.81	1	5	Turkish origin 1, Kurdish origin 2, Zaza 3, Arabic 4, 5 other
religion	195,074	1.12	0.48	1	4	Sunni 1, Alavi 2, other Muslim 3, other 4
religionpractice	198,793	2.79	0.66	1	4	not believer 1, believer 2, religious 3, radical believer 4
sunni	200,759	0.92	0.27	0	1	Sunni 1, else 0
tv	179,727	10.64	5.68	1	20	19 channel choices, don't watch tv is 1
home	191,034	2.54	0.69	1	5	type of home, 1 shanty town, 2 house, 3 apartment, 4 gated community, 5 luxury building
help	45,924	5.82	0.85	1	6	financial help from municipality 1, district 2, political 3, foundation 4, other 5, not help 6
nohelp	200,759	0.22	0.41	0	1	if no financial help is taken 1 else 0
urban	200,659	1.30	0.77	0	2	urban 1, metropol 2, rural 0
migrant	95,890	1.59	0.85	1	5	not migrant 1, himself 2, father 3, both 4, re-migrated 5
politicnow	195,214	2.78	2.06	1	7	which party would you vote for now
politic2007	40,741	3.09	2.90	1	10	which party did you vote for in 2007
politic2009	14,056	3.38	2.97	1	10	which party did you vote for in 2009
politic2011	75,438	2.71	2.42	1	9	which party did you vote for in 2011
lifestyle	151,955	1.99	0.73	1	3	modern 1, traditional conservative 2, religious conservative 3
enough	132,718	2.19	0.94	1	4	did you get along with your expenses? 1 yes and I could save, 2 somewhat I could, 3 not really, 4 no I could not pay my expenses
crisis	122,316	0.49	0.50	0	1	I expect a crisis in Turkey as 1 and no as 0
electcrisis	7,564	0.52	0.50	0	1	I expect a crisis after elections in Turkey as 1 and no as 0
youcrisis	121,378	0.53	0.50	0	1	I expect a crisis in my life in Turkey as 1 and no as 0
happygovt	20,406	3.20	1.15	1	5	do government policies have an effect in your life, to get along expenses, happiness and anger? Not at all 1, no 2, I don't know exactly 3, yes 4, very much 5
car	103,895	0.44	0.50	0	1	if the family has a car 1, else 0
politic2014	49,288	2.61	2.24	1	9	which party did you vote for in 2014
birthmonth	9,591	5.63	3.50	1	12	1 to 12
economic	68,515	2.44	1.02	1	4	1 low, 2 low-middle, 3 new middle class, 4 high income
newspaper	18,900	11.25	8.51	1	24	24 different choices
politic2015	19,199	2.55	2.06	1	9	which party did you vote for in 2015
idea	41,782	2.43	0.82	1	3	1 the country is doing well, 2 I do not see a problem, 3 I find serious political crisis
howturkey	8,365	2.84	1.22	1	5	the life conditions in the last 5 years in Turkey was good. 1 totally wrong, 2 wrong, 3, not certain, 4 correct, 5 very correct
me5year	8,369	2.88	1.14	1	5	my life conditions in the last 5 years in Turkey was good. 1 totally wrong, 2 wrong, 3, not certain, 4 correct, 5 very correct
me1year	11,376	2.73	1.08	1	5	me and my family's life conditions in the last year in Turkey changed to: 1 very bad, 2 bad, 3, not certain, 4 good, 5 very good
megovt	11,100	3.54	1.89	1	5	what is the effect of the government economic policies on me 1 year? 1 not at all, 2 not, 3 not certain, 4 has effect, 5 has a big effect
turkeyfuture	8,296	2.93	1.10	1	5	the general life conditions in Turkey will be much better in 5 years? 1 not at all, 2 not, 3 not certain, 4 has effect, 5 has a big effect
me5future	8,287	3.05	1.03	1	5	my life conditions in Turkey will be much better in 5 years? 1 not at all, 2 not, 3 not certain, 4 has effect, 5 has a big effect
single	15,875	0.23	0.42	1	5	single 1, else 0
sing	15,875	2.60	0.92	1	5	single 1, engaged 2, married 3, widow 4, divorced 5
married	15,875	0.70	0.46	0	1	married 1 else 0
politic2015nov	29,125	2.61	2.37	1	9	which party did you vote for in 2015 november
face	10,671	0.50	0.50	0	1	if uses facebook 1 else 0
twit	10,671	0.20	0.40	0	1	if uses twitter 1 else 0
whatsapp	10,671	0.42	0.49	0	1	if uses whatsapp 1 else 0
youtube	10,671	0.25	0.43	0	1	if uses youtube 1 else 0
insta	10,671	0.25	0.43	0	1	if uses instagram 1 else 0
internet	10,671	0.02	0.14	0	1	if uses internet but no social media 1 else 0
nointernet	8,119	0.34	0.47	0	1	if does not use internet 1 else 0
gnppercapita	94,857	595	704	0	75,000	gnp per capita nominal
city						will be converted to numeric, city where the person lives