

Risk tolerance and demographic characteristics: Preliminary Irish evidence

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Abstract

We examine by means of a survey and subsequent statistical analysis the extent of financial risk tolerance in Irish adults. We administer the (Grable & Lytton, 1999) 13 item risk tolerance instrument, and find confirmed a number of stylized facts found elsewhere on age, gender, and education levels and their impact on risk tolerance. This is to our knowledge the first comprehensive survey of Irish adults on their risk tolerance. © 2013 Academy of Financial Services. All rights reserved.

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1. Introduction

Understanding financial risk tolerance and determining an individual's willingness and capacity to take on risk is an essential part of financial and indeed economic planning. Financial planners and portfolio managers will often allocate a large part of their time in considering individual clients' "preferences and perceptions of risk" to try to increase client retention via a more appropriately structured product. Many financial planners will use

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tactics such as situational profiling using wealth and life stage, as well as psychological measures to achieve this. Increasingly planners draw on the behavioral economics literature.

Determining a client's financial risk tolerance is a crucial part of the investment management process. In assessing the risk profile of a system or individual, it is generally seen that there are four main inputs (1) goals, (2) time horizon (3) financial stability, and (4) risk tolerance (Garman and Fogue, 1997). The final input, risk tolerance, is one of a more subjective than objective nature and thus is much more difficult to measure. Although countless attempts have been made to come up with a more precise quantitative measure for this final input, there is no one size fits all approach to measuring risk tolerance and such it has attracted a high level of interest among a range of schools of thought worldwide and merits further insight and investigation. Further, according to Anbar and Eker (2010) there are four main methods found in the literature for measuring financial risk tolerance, which include "(1) assessing actual behavior (e.g., portfolio allocations may be used to infer attitudes to risk), (2) asking about investment choices, (3) asking a combination of investment and subjective questions, and (4) asking hypothetical questions with carefully specified scenarios." For the purpose of this article we wish to focus mainly on financial risk tolerance.

Investors may assess risk in terms of "what if I can't live the way I want in the future?" whereas the standardized financial textbook definition thinks of risk in terms of the standard deviation. An individual who accepts a greater degree of financial risk does so with a goal of generating higher returns in the future and thus accumulating a greater amount of wealth over time. There does not seem to be any generally accepted definition of financial risk tolerance: it has been described as attitudes to downside risk, upside risk, tolerance towards a given risk level, towards a given return or towards uncertainty itself in relation to financial decisions. Moreover, it is individual, in that what one investor deems as risky another investor might regard as having relatively little risk.

There is, however, a broad consensus on a set of three investor types: A risk averse investor, a risk neutral investor, and a risk seeking or risk loving investor. Risk averse reject investment portfolios that are fair games or worse. Risk averse investors typically are willing to consider only risk free or speculative prospects with positive risk premiums. A risk neutral investor by contrast, judges risk always in relation to return. Finally, the risk loving or risk seeking investor, accepting the utility from engaging, accepts fair games or worse. The notion of the fair game, where the expected return on a wager or investment is zero, comes from Bachelier and was later applied to the efficient market hypothesis developed by Eugene Fama in the 1960s. Risk aversion can be described by Jensen's inequality: Jensen's inequality is the mathematical basis for the risk aversion argument which states that "An agent who prefers a certain outcome to a risky outcome with the same expected return is said to be risk averse" with the "utility based valuation of risk" illustrating "how risk aversion naturally arises for agents with concave utility functions." However, as stated previously no two individuals will define their own individual risk aversion identically, not all risk-averse individuals are equally risk averse, and such using a series of hypothetical situations and conducting the same survey among a sample of Irish individuals may prove a useful tool to as to quantifying an inherently qualitative concept. Indeed Dohmen et al. (2011) suggest that a single risk attitude metric is able to explain a very large amount of cross measure variation in other area (health, sport, etc.) measures.

2. Previous research on financial risk tolerance

From previous studies conducted to determine how socio-demographic factors affect financial risk tolerance of individuals, a number of characteristics have emerged as significant determinants of financial risk tolerance.

A number of studies have shown the importance of *gender*, with in general males being seen as more risk tolerant or risk taking than female. Some attribute this to gender stereotyping in upbringing with male children being encouraged to engage in more 'daredevil' childhood activities. Medical research (Sapienza, Zingales, and Maestripieri, 2009) seems to indicate a strong link with testosterone. Thus, Grable and Lytton (1999) found females to take more conservative financial strategies than males; Barber and Odean (2001) show the relationship between male and risk taking in trading; Faff, Hallahan, and McKenzie (2011) found males more risk tolerant than females; Faff, Mulino, and Chai (2008) used a lottery choice experiment to find that women tend to be more risk averse (and less tolerant of financial risk) than males; Dohmen et al. (2011) also found males to be more risk tolerant; Anbar and Eker (2010) concluded that the financial risk tolerance level of male students was higher than that of female students.

A second socio demographic factor typically associate with financial risk tolerance is *age*, with younger persons hypothesized, and generally found, to have higher risk tolerance. Sinha (1992) albeit looking only at males found increasing risk and loss aversion among older respondents. Faff et al. (2011) find that financial risk tolerance "declines at an increasing rate as age increases" and report that the risk tolerance of the retired is lower than all other demographic groupings. Faff et al. (2008) suggested that risk aversion and financial risk tolerance have a nonlinear relationship with age, with financial risk tolerance decreasing up until a point and then increasing again. Further researchers who found age to be a significant determinant of financial risk tolerance include Sung and Hanna (1996a), Chaulk, Johnson, and Bulcroft (2003), and Santacruz (2009). However, some of the literature has found the opposite effect concluding that older people are in fact more risk tolerant than younger people. Bommier and Rochet (2006) found that within their sample elderly people tend to hold riskier portfolios than younger people and they suggest that this apparent anomaly can be resolved by taking into account consumption patterns at different periods along the investor's life cycle. The January 2010 Quarterly affluent insight survey conducted by Merrill Lynch concluded "Younger investors are more risk averse than older investors. Those in their 20s and 30s are more risk averse than the 40s and 50s demographic because they have been burned twice in the last decade. Older investors are more concerned about inflation, where younger investors aren't as concerned because they haven't experienced it [inflation] yet." Further research articles that have found age to be a statistically insignificant measure of financial risk tolerance include Van De Ventner and Michayluk (2009), Anbar and Eker (2010), and Antonites and Wordsworth (2009).

Another commonly used measure of financial risk tolerance is a person's *marital status*. It is generally assumed that those people who are single and have never been married are the least risk averse of all investor types because they generally have the least responsibility for others and are more exposed to social (marital partner) pressure. Grable and Roszkowski (2007) and Grable and Joo (2004) found that married respondents tend to exhibit lower levels

of financial risk tolerance than other respondents. Faff et al. (2011) found that married couples were less risk tolerant than single people and concluded that gender did not impact on this trend. Overall, however, single people were found to have a slightly higher risk tolerance than all other demographics. This finding is not concrete, however, and some researchers have failed to find any significant relationships (Anbar and Eker, 2010; Antonites and Wordsworth, 2009).

Employment status is another factor that may have an effect on the financial risk tolerance of an individual. A common assumption would be that those who are working in a job would have a higher risk tolerance than the unemployed because they are likely to have a higher disposable income and such can afford to take on more risks than the unemployed who may be quite restricted in some of the financial risks they wish to engage in. Anbar and Eker (2010) found a significant difference in the financial risk tolerance of the employed and the unemployed. Financial risk tolerance of those who work is higher than those who do not. Antonites and Wordsworth (2009) found a clear distinction between the self-employed and those who work for pay outside the home as well as the unemployed, the concluded that entrepreneurs or the self-employed had a higher risk tolerance than all other categories of employment status. This confirms the Stewart and Roth (2001) finding that entrepreneurs have a higher risk tolerance than all other categories. Furthermore, Griesdorn (2009) also reports that self-employed households are more likely to report higher levels of risk tolerance than all others and have a high preference for liquidity. The relationship between risk tolerance and employment may also relate to the finding of (possible nonlinear) relationship between risk tolerance and wealth (Faff et al., 2011).

The *level of education* of an individual is another factor that has been adduced to be a significant factor in determining one's financial risk tolerance. Many researchers have found that higher levels of education were associated with higher levels of financial risk tolerance (Gilliam and Chatterjee, 2011; Grable and Joo, 2004; Sung and Hanna, 1996a, 1996b). Brasoveanu, Paun, Musetescu, and Draghici (2008) and Van De Ventner and Michayluk (2009) look at education and wealth as oppose to education and financial risk tolerance and find that in general a higher level of education is associated with a higher level of net assets.

The final demographic factor discussed is home ownership status. Antonites and Wordsworth (2009) and Sung and Hanna (1996b) find no significant link between financial risk tolerance and home ownership status. Yang (2004), however, found that there was a negative relationship between home ownership and financial risk tolerance, indicating that as individuals come to acquire home ownership status, their risk tolerance declines. This is consistent with a finding by Grable and Joo (2004) that found that homeownership is a significant variable in predicting financial risk tolerance.

An interesting determinant that may have an effect on financial risk tolerance is *economic downturns* and periods of recessions. Santacruz (2009) studied the effect of general economic mood on investor risk tolerance while Yip (2000) studied whether financial risk tolerance was a state or trait. Santacruz failed to find any meaningful significance to imply that risk tolerance is affected by general economic mood while Yip came to the conclusion that financial risk tolerance was indeed a stable trait over time and that the affect of a major stock market crash (a mimicked one for the purpose of the investigation using a 'stock wars' type competition on participants) did not appear to affect the stability of risk tolerance.

Roszkowski and Davey (2010) studied the effect of the economic crisis of 2008 on individuals risk tolerance and on their perceptions of risk. Interestingly, however, they found that the change in risk tolerance pre and post 2008 was relatively small. They found only a slight decline in risk tolerance as a result of the 2008 economic crisis; Yuen and Chen (2008) studied investment risk tolerance, before and after the financial crisis of 2008 in Hong Kong. This research is of interest in particular because of the fact that they asked respondents to answer a self-reported investment risk tolerance before and after the recent crisis. They found little if any difference on this measure. This research proposal also asked respondents to answer one question developed by Dohmen et al. (2011) in which they were asked to indicate on a scale of 1 to 10 their willingness to take risks before and after the financial crisis in Ireland. Note that we did not specify when the start was or the nature of the crisis, working from the assumption that the crisis being so all pervasive in Ireland people were aware of same. This is not unreasonable: the Irish financial crisis has been well discussed as being among one of the more severe in world history (see for instance Bergin, Gerald, Kearney, and O'Sullivan [2011]; Drudy and Collins [2011]; Gurdgiev, Lucey, Bhaird, and Roche-Kelly [2011]) and the crisis has permeated all aspects of Irish discourse. It is also of interest as, to our knowledge, there is to date no benchmark study of financial risk tolerance among Irish adults. Thus, policy making and financial planning must perforce operate in a vacuum.

3. Data

3.1. Methodology

The population frame of this study consisted of the general public of the Republic of Ireland. The analysis was conducted in the form of a survey. The survey was distributed throughout Ireland and of the 800 surveys distributed, 664 (an 83% response rate) were returned suitable for use in this analysis. The age group in this study was strictly between 20 years old and 65 years old. Many previous studies have relied on an implicit assumption that respondents, typically university students or faculty, are representative of the general population. We felt that this approach might not be justifiable here, as no previous study had been undertaken of the Irish general public. Thus, to provide a benchmark for future study we took a whole-adult population approach. Surveys were distributed in May–June 2011 in a number of locations, including intercity train stations, police stations, medical centers, second level schools, and in streets and parks in a number of cities and towns. All surveys were either completed and returned 'on the spot' (as people had time while waiting for their appointments) or returned via prepaid mail within a short time.

The survey comprised two parts: a socio-demographic questionnaire and a hypothetical based questionnaire designed to gather information on the individual's attitude towards risk taking in the financial sense. The first part of the survey involved asking questions to gather the socio-demographic characteristics of the respondent. The questions were related to age, gender, location in Ireland of residence, working in a job, employment status, education, home ownership status, household income, and so forth, while the second part of the survey consisted of the 13 question financial risk tolerance scale developed by Grable and Lytton

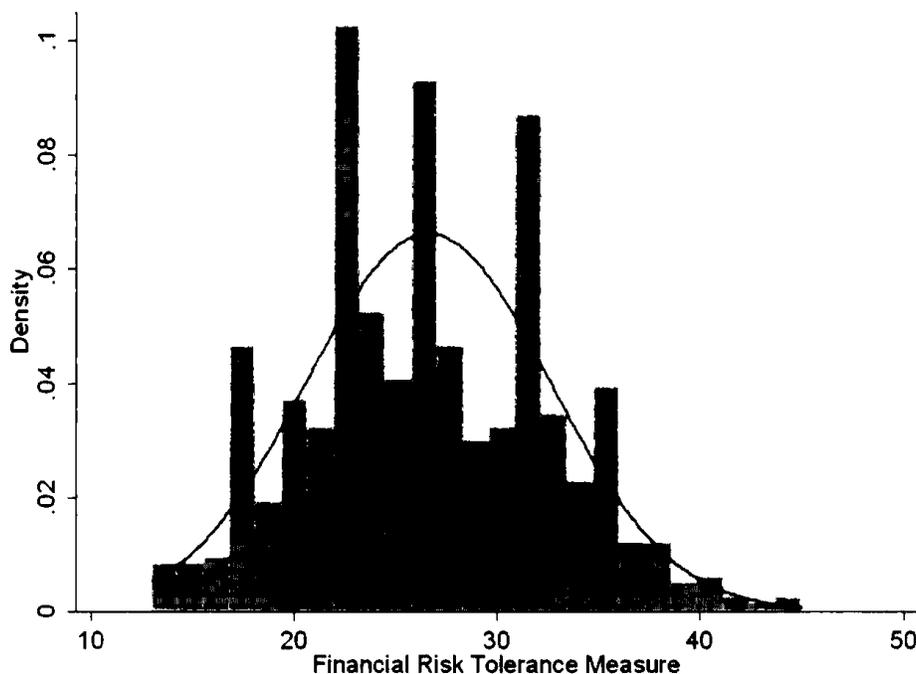


Fig. 1. Financial risk tolerance metric as constructed.

(1999) that has been widely used by many others in measuring financial risk tolerance. The responses given were aggregated according to Appendix 1.

3.2. Data

Fig. 1 shows the distribution of the calculated financial risk tolerance index. Show in Table 1 are some descriptive statistics of the FRT index. In total, of the 800 questionnaires distributed some 656 usable returns were made, a response rate of 82%, well above the norm for this form of analysis.¹

In the analyses of data, we used both regular and logistic regression to determine the influence of socio-demographic characteristics on financial risk tolerance. Given the clear non-normality of the FRT measure, to obtain the binary classification we coded individuals according to whether they were above or below the median of 26.

4. Results

Shown in Tables 2 and 3 are results of OLS and Logistic regressions of financial risk tolerance on a number of demographic characteristics.

Referring to the literature we see here that there is some support for the contention that *males* are more tolerant of risk, this characteristic being strongly associated with increased measures of risk across all models and across both estimation methods. We also see that increased *education* levels are associated with increased financial risk tolerance. This holds whether we define education as postgraduate versus not or more gradually (via the education

Table 1 Descriptive statistics of financial risk tolerance

Variable		Mean	Standard deviation	N
All data		26.58	6.02	656
Married	No	27.28	6.19	353
	Yes	25.77	5.71	303
Male	No	24.63	5.45	311
	Yes	28.34	5.97	345
Dublin resident	No	26.46	5.99	426
	Yes	26.80	6.06	230
Working	No	25.36	5.55	127
	Yes	26.87	6.09	529
Aged in 20s	No	26.10	5.96	426
	Yes	27.47	6.04	230
Owns own house	0	27.00	6.07	299
		26.23	6.02	357
Education level	School leaver	25.28	5.93	235
	College	26.56	5.99	314
	Postgraduate	29.52	5.25	107

Table 2 OLS regression of FRT measure on demographic characteristics

	Coefficient	Coefficient	Coefficient	Coefficient
Married	-0.66	-0.51	-0.16	-0.13
Age 20	0.93	0.95	2.39**	2.46**
Age 30			2.31**	2.28**
Age 40			0.87	0.85
Age 50			1.17	1.14
Male	3.22***	3.28***	3.22***	3.22***
Dublin	0.63	0.84	0.84	0.84
Working	0.96	0.72	0.40	0.47
Own house	-0.09	-0.18	0.10	-0.25
Postgrad	2.73***			
Education level		1.61***	1.49***	1.49***
Others earning			-0.46	
Constant	23.47***	21.08***	20.03***	20.03***
R ²	0.16	0.15	0.16	0.16

Table shows results of and an OLS regression with white corrected standard errors. Dependant variable is the Financial Risk Tolerance measure; Married = Dummy that takes value = 1 if married, 0 else; age 20/30/40/50 = Dummy that takes value = 1 if respondent in that age cohort, with exception of age 50 which is aged 50 to 65, 0 else; male = Dummy that takes value = 1 if male, 0 else; Dublin = Dummy that takes value = 1 if respondent resides in Dublin, 0 else; working = Dummy that takes value = 1 if presently working, 0 else; own house = Dummy that takes value = 1 if respondent owns (outright or via mortgage) own home, 0 else; postgrad = Dummy that takes value = 1 if respondent has postgraduate or professional qualifications, 0 else; education level = variable that takes value 1 for second level schooling only, 2 for college level schooling and 3 for postgraduate or professional qualifications. Others earning is the number of other persons in the household earning.

***, **, *Differences significant from 0 at 1/5/10% confidence level.

Table 3 Logistic regression of high/low risk on demographic characteristics

	Coefficient	Coefficient	Coefficient	Coefficient
Married	-0.19	-0.01	-0.14	0.01
Age 20	0.17	0.45	0.18	0.48
Age 30		0.56		0.58
Age 40		-0.05		-0.07
Age 50		0.19		0.18
Male	0.94***	0.98***	0.96***	0.94***
Dublin	-0.10	-0.04	-0.03	-0.04
Working	0.04	-0.13	-0.05	-0.10
Own house	-0.06	0.07	-0.09	-0.10
Postgrad	0.87***			
Education level		0.52***	0.54***	0.52***
Others earning		-0.22*		
Constant	-0.61**	-0.12***	-1.42***	-1.63***
Pseudo R^2	0.07	0.08	0.07	0.07

Table shows results of a logistic regression with white corrected standard errors. Dependant variable is a dummy that takes the value 1 if the measured financial risk tolerance is above the median, 0 else; Married = Dummy that takes value = 1 if married, 0 else; age 20/30/40/50 = Dummy that takes value = 1 if respondent in that age cohort, with exception of age 50 that is aged 50 to 65, 0 else; male = Dummy that takes value = 1 if male, 0 else; Dublin = Dummy that takes value = 1 if respondent resides in Dublin, 0 else; working = Dummy that takes value = 1 if presently working, 0 else; own house = Dummy that takes value = 1 if respondent owns (outright or via mortgage) own home, 0 else; postgrad = Dummy that takes value = 1 if respondent has postgraduate or professional qualifications, 0 else; education level = variable that takes value 1 for second level schooling only, 2 for college level schooling and 3 for postgraduate or professional qualifications. Others earning is the number of other persons in the household earning.

***, **, *Differences significant from 0 at 1/5/10% confidence level.

level variable). In the literature in general age is a key risk correlate, age being inversely related to risk. This is not the case here: Younger *age* is not clearly associated with increased financial risk tolerance; in fact the average risk tolerance of respondents across age brackets peaks in respondents in their thirties. This may reflect, although the data are not such that we can test this, as a consequence of the economic history of Ireland. Persons in their thirties would have come to maturity in the middle 1990s, when after decades of underperformance the Irish economy began to experience rapid growth (see Barry, 1999). Although the economy did go into steep recession post 2008 (see Gurdgiev et al. [2011]) the crucial period in which economic expectations were formed, for this cohort, was a 15 year period when by and large Irish economic growth was such as to lead to the country being described as “the Celtic tiger.” Of related interest are changes over time, given this crisis. We collected (self reported) changes in risk tolerance over the crisis. Shown in Table 4 are the changes over selected demographics. In all bar one case these tested as being significantly different from zero, indicating that (self reported) risk profiles had changed. It is not surprising that over the crisis period in almost all cases the risk tolerance had fallen. What is surprising is that it had risen for one class, professional or postgraduate educated, but this measured as statistically insignificant. The greater falls were in older adults, in married persons, and in those with lower levels of educational attainment. There is a step change in how different age profiles respond. The falls in risk tolerance are much greater for those in their 50s and above. Again the

Table 4 Changes in self reported financial risk tolerance pre- or postcrisis

All respondents	–0.89***
Age 60s	–1.82***
Age 50s	–1.45***
Age 40s	–0.84***
Age 30s	–0.89***
Age 20s	–0.44***
Married	–1.24***
Dublin	–0.88***
Owns house	–1.08***
Second level	–1.15***
College	–1.02***
Postgraduate or professional	0.02
Working	–0.81***
Male	–.60***

Table shows changes in self reported financial risk tolerance pre- or postcrisis; Married = Dummy that takes value = 1 if married, 0 else; age 20/30/40/50/60s = Dummy that takes value = 1 if respondent in that age cohort, male = Dummy that takes value = 1 if male, 0 else; Dublin = Dummy that takes value = 1 if respondent resides in Dublin, 0 else; working = Dummy that takes value = 1 if presently working, 0 else; own house = Dummy that takes value = 1 if respondent owns (outright or via mortgage) own home, 0 else; postgrad = Dummy that takes value = 1 if respondent has postgraduate or professional qualifications, 0 else.

***, **, *Differences significant from 0 at 1/5/10% confidence level.

context of Irish economic history may be useful; persons in their 50s and 60s in this survey would have come to economic maturity in either the early to mid-1970s or 1980s. Ireland was by no means immune to the economic crises of the 1970s, and experienced a sharp recession, while the 1980s was sufficiently deep as to warrant the US great Depression as an appropriate benchmark (see Ahearne, Kydland, and Wynne [2006]). Thus, having experienced and had formed economic expectations in these periods of economic dislocations, and then having seen a period of significant growth in the 1990s and 2000s it is perhaps not surprising that these cohorts would revert very significantly in terms of risk preference and tolerance. Overall, across all respondents, in the context of a mean measured risk tolerance of 26.5 the mean fall of 0.89 (therefore, albeit on a 1–10 scale measure not strictly comparable) suggests that *précis* the risk tolerance would be closer to a mean of 30.

Although *marriage* does seem to reduce risk, being the correct sign, it is not significant. Similarly, we find that *home ownership* reduces financial risk tolerance, but by an insignificant amount. We were not able to examine the role of wealth, as we did not collect data on individual or household wealth, judging that this would result in considerably reduced reporting rates. We do find that that risk tolerance rises with increased numbers of persons in the *household earning*, indicating perhaps a risk pooling or a perception of household diversification. There is no evidence that persons in Dublin (the largest urban area) have a significantly higher or lower risk tolerance.

There are some interesting policy implications that emerge from this, because of the pre-existing incentives built into the Irish public policy system. Housing has always been given extreme preference within the taxation structure, something that encourages home-ownership, capital improvements, and the acquisition of further properties (see Norris and Winston [2011]). Though it has negligible impact on the risk appetites it introduces a large

amount of obscured endogenous risk because of the natural home bias of the property market (see O’Dea [2008]). This way risk-averse actors can take on large amounts of risk without realizing it because of tax efficiency decisions. The educational interpretations are in keeping with international norms but highlight an area that financial regulators are only beginning to tackle. Education investments are by their nature uncertain but they also change many aspects of student behavior over time, as indicated in research by Pascarella and Terenzini (2005). Financial regulators should move to try to create information that not only can be understood by poorly educated members of the public with respect to credit cards and other consumer credit instruments but also for more sophisticated investors who are capable financial neophytes but are not sufficiently expert to in more complex financial instruments to make sound risk assessments. Irish consumers are poorly educated on personal finance (see the discussion in McCarthy [2011]). In the area of pensions policy, it is clear that more conservative regulations need to be put in place for those in their 50s as they approach retirement age because of the potential pension income problems generated by a higher risk appetite. The Irish context may make this more difficult because of the generally compromised state of Irish pension funds, where an increased risk profile may be needed to recoup losses incurred from domestic bank share investments. The recent discussion in the Irish media with respect to the infamous “contracts-for-difference” arrangements for Anglo–Irish shares brought to light the information asymmetries that riddle the sector. At a wider monetary policy level the demographics make it clear that inflation expectations have been modified to such an extent that “inflation shocks” could successfully be used in the short-run to counteract the effects of debt overhang and nominal wage rigidities. The role of inflation expectations can be re-evaluated now and once again used as a policy instrument, though, admittedly, a double-edged sword. The changed nature of inflation expectations in Ireland is also an indication of the success of the antiprice-inflation policies embraced in Europe since the early 1990s.

From the perspective of financial planners, the Irish market is undergoing rapid governance change. The financial crisis has resulted, among other changes, in a greatly strengthened consumer finance oversight role for the Central Bank of Ireland, with the rolling out of requirements for professional qualification and certification of standards. Part of this is an enhanced customer risk profiling. With this dataset and article, based on a well accepted financial risk profile tool, individual financial planners should be able to effectively benchmark individual clients.

5. Summary and conclusions

Examining the risk tolerance of Irish adults we find that in general they show similar patterns to those found elsewhere in the literature. Age is in and of itself not a key distinguishing factor, while gender is. Risk tolerance decreases with homeownership and increases with household earning and with education levels. Irish adults have shown marked and significant decreases across almost all demographic categories over the course of the crisis. Further studies of national differences in financial risk tolerance might yield useful results.

Notes

- 1 The breakdown versus the census indicates, as we might expect, some differences: 47.4% of the samples are male versus 50.6% as of last census; Dublin area residents are 35% of the sample versus 29.3% census; persons aged in their 20s comprise 35% of the sample versus 27% census. Thus the sample here while reasonably in line with the demographic makeup of the Irish population is not a perfect fit.

Appendix 1

Grable and Lytton 13 question financial risk tolerance survey:

Q1: In general, how would your best friend describe you as a risk taker?

- A real gambler
- Willing to take risks after completing adequate research
- Cautious
- A real risk avoider

Q2: You are on a TV game show and can choose one of the following. Which would you take?

- €1,000 in cash
- A 50% chance at winning €5,000
- A 25% chance at winning €10,000
- A 5% chance at winning €100,000

Q3: You have just finished saving for a “once-in-a-lifetime” vacation. Three weeks before you plan to leave, you lose your job. You would:

- Cancel the vacation
- Take a much more modest vacation
- Go as scheduled, reasoning that you need the time to prepare for a job search
- Extend your vacation, because this might be your last chance to go first-class

Q4: If you unexpectedly received €20,000 to invest, what would you do?

- Deposit it in a bank account, money market account, or an insured deposit instrument
- Invest it in safe high quality bonds or bond mutual funds
- Invest it in stocks or stock mutual funds

Q5: In terms of experience, how comfortable are you investing in stocks or stock mutual funds?

- Not at all comfortable
- Somewhat comfortable
- Very comfortable

Q6: When you think of the word “risk” which of the following words comes to mind first?

- Loss
- Uncertainty
- Opportunity
- Thrill

Q7: Consider this scenario. Some experts are predicting prices of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value; bond prices may fall, however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high-interest government bonds. What would you do?

- Hold the bonds
- Sell the bonds, put half the proceeds into money market accounts (savings accounts), and the other half into hard assets
- Sell the bonds and put the total proceeds into hard assets
- Sell the bonds, put all the money into hard assets, and borrow additional money to buy more

Q8: Given the best- and worst-case returns of the four investment choices below, which would you prefer?

- €200 gain best case; €0 gain/loss worst case
- €800 gain best case; €200 loss worst case
- €2,600 gain best case; €800 loss worst case
- €4,800 gain best case; €2,400 loss worst case

Q9: In addition to whatever you own, you have been given €1,000. You are now asked to choose between two alternatives. Please indicate which you would choose.

- A sure gain of €500
- A 50% chance to gain €1,000 and a 50% chance to gain nothing

Q10: In addition to whatever you own, you have been given €2,000. You are now asked to choose between two alternatives. Please indicate which you would choose

- A sure loss of €500
- A 50% chance to lose €1,000 and a 50% chance to lose nothing

Q11: Suppose a relative left you an inheritance of €100,000, stipulating in the will that you invest ALL the money in ONE of the following choices. Which one would you select?

- A savings account or money market fund
- A mutual fund that owns stocks and bonds
- A portfolio of 15 common stocks
- Commodities like gold, silver, and oil

Q12: If you had to invest €20,000, which of the following investment choices would you find most appealing?

- 60% in low-risk investments 30% in medium-risk investments 10% in high-risk investments
- 30% in low-risk investments 40% in medium-risk investments 30% in high-risk investments
- 10% in low-risk investments 40% in medium-risk investments 50% in high-risk investments

Q13: Your trusted friend and neighbor, an experienced geologist, is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chance of success is only 20%. If you had the money, how much would you invest?

- Nothing
- One month's salary
- Three month's salary
- Six month's salary

Q14: How do you see yourself: Are you generally a person who is fully willing to take risks or do you try to avoid taking risks? Please indicate on a scale of 0–10, how willing you are to take risks in general, where 0 indicates 'unwilling to take risks' and 10 indicates 'fully prepared to take risks.'

Now: _____

Before the financial crisis: _____

Q15: How long have you been investing?

1. Never have (please skip to question 30) _____
2. 0–3 years _____
3. More than 3 years _____

Q16: Which statement below describes your pattern of investment portfolio the best?

- a. Your main concern is always income from the sum invested
- b. Your main aim is always growth in the sum invested
- c. Your main aim is to achieve both income and growth

Q17: How much risk do you think you can take on?

- a. You love taking risk
- b. You like to go for a mixture of risk and caution
- c. You hate taking risks completely

THIS QUESTION IS OPTIONAL: please skip if you are unsure or would rather not answer.

Q18: Thinking about your current financial situation, approximately what percentage of your personal and retirement savings and investments are in the following categories? (Note: Please complete every box in this section. For investments categories that are not selected, place a zero in the box. Percentages should total 100%.)

- % Cash, such as savings accounts, deposits, or money market mutual funds
- % Fixed income investments, such as corporate bonds, government bonds, or bond mutual funds
- Equities, such as stocks, stock mutual funds, direct business ownership or investment real estate (not your personal residence)
- % Other, such as gold or collectibles.

Q19: What is your attitude towards investing money?

- a. You don't want to lose any of your principal amount because you believe that is the biggest loss
- b. You want to put more money on the fixed deposit accounts, as they are relatively safe
- c. Stocks may give you a better return in future but since you are uncertain about future you will like to focus on the present more
- d. You will always like to invest money on the companies which are not doing too well right now but has good prospects of growth as that gives an opportunity to gain more.

Q20: Suppose in a lottery game, the possibility to win 1,000 euro is 10%, then how much would you pay at most to buy a lottery ticket?

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