



Circumstantial risk: Impact of future tax evasion and labor supply opportunities on risk exposure[☆]



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ABSTRACT

This paper examines whether investment in a risky asset depends on future circumstances. We conduct a laboratory experiment where subjects have the opportunity to invest earned income in a risky asset and, depending on randomly assigned treatment states, have the opportunity to respond to the outcome of the investment through extra labor effort and/or tax evasion. We find evidence that ex-post access to labor opportunities decreases ex-ante risk-taking, while access to tax evasion has no effect. Having both opportunities leads to lower risk-taking, but this effect is not statistically significant. We explore the channels behind these results with two additional treatments and find that our results are driven by background risk rather than flexibility.

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1. Introduction

Although approximately 94% of households in the United States hold some type of financial asset, there is significant variation in the type and amount of financial assets held (Bricker et al., 2012). For example, 15% of families hold stocks, 50% hold retirement accounts, 8.7% hold pooled investment accounts and 92.5% hold transaction accounts.¹ Financial asset

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¹ These statistics are taken from the Survey of Consumer Finances. Bricker et al. (2012) provides a detail summary of the results including definitions of the various financial assets. Transactions accounts include checking, savings, and money market deposit accounts; money market mutual funds; and call or cash accounts at brokerages. Retirement accounts include personally established individual retirement accounts (IRAs) or job-based 401(k) accounts. Pooled

holdings also vary with individual and household characteristics. While 24.5% of households headed by self-employed individuals have stocks in their portfolios, only 13.8% of households headed by employed individuals do. Additionally, the trends described by Bricker et al. (2012) show evidence of significant variation in risk exposure. For example, the median amount of money invested in bonds by an employed household is approximately eight times as much as that invested in stocks; the comparable ratio for self-employed households is five. An extensive literature in finance and economics has been devoted to explaining these observed variations in risk exposure. Two questions that have received a lot of attention are (Heaton and Lucas, 2000): how do investors decide how much of their income to invest in risky assets, and why do some individuals have greater risk exposure than others?

The theoretical finance literature has provided many insights to these questions. For example, Heaton and Lucas (2000) point out that if risk decisions are driven by utility-maximizing behavior then the drivers of risk exposure can be separated into two broad categories: preferences and ‘circumstances’. It is clearly the case that some individuals are more risk-averse than others and that this variation in risk preference affects the amount of risk to which individuals voluntarily expose themselves. Circumstances generally refer to the future opportunities individuals know they will have access to at the time of making risky investment decisions. These circumstances usually have two features – flexibility and background risks – that may have opposing effects on risk exposure. Flexibility acts as a type of insurance against adverse outcomes and is therefore predicted to increase risk exposure (Bodie et al., 1992; Franke et al., 2011). For example, the ability to vary labor hours or take an additional job may be used as insurance against negative investment outcomes. The opportunity to adjust future labor supply in response to the investment outcome is advantageous and therefore increases current risk exposure. On the other hand, future opportunities with risky and uninsurable income represent background risk. This future risk may cause the current risk exposure of individuals to increase, decrease or remain unchanged depending on the form of risk aversion (Gollier and Zeckhauser, 2002). As a result, the impact of background risk on current risk exposure remains an empirical question. Furthermore, because future circumstances generally include both flexibility and background risk, which may have opposing effects on risk exposure, the impact of future circumstance on current risk exposure is ultimately an empirical question. Understanding the impact of the interaction of these two characteristics is important, but challenging to determine in existing theoretical models without additional assumptions.

Empirical efforts to identify the impact of circumstances produce inconclusive results. For example, Benitez-Silva (2002) tests the theory in the context of labor-supply flexibility and finds that individuals who have flexible work hours tend to hold significantly more (risky) stocks. Although this result is consistent with the theoretical work of Bodie et al. (1992), there remains some identification concerns due to self-selection. To the extent that individuals with greater labor-supply flexibility also have greater preference for risk exposure, it is not clear that the identified effect is due to labor-supply flexibility or risk preferences.² The empirical efforts to identify the impact of background risk is more extensive, but the results are mixed. Although a number of studies find that the presence of background risk reduces risk exposure, the magnitude of the effect varies (Heaton and Lucas, 2000; Klos, 2004). More importantly, the results from the existing literature suggest that the impact of background risk depends on the source of background risk: labor-income risk seems to reduce risk exposure while investment income risk seems to have little or no effect on risk exposure.

We contribute to this literature by identifying whether circumstances such as access to future labor-income and tax-evasion opportunities affect current risk exposure. In particular, our research question is: Does the opportunity to earn additional labor income and/or evade taxation affect risky-asset investment? By studying these two circumstances that feature both flexibility and background risk in the same setting, we are able to cleanly identify the impact of both circumstances as well as their interaction on risk exposure. We are also able to determine if the effects depend on the type of circumstance.

As indicated above, answering these questions with observational data leads to identification problems that are very difficult to overcome. Namely, it can be presumed that individuals with a high intrinsic willingness to take risks self-select into occupations with greater access to tax evasion and additional labor supply opportunities such as self-employment (Cramer et al., 2002; Hartog et al., 2002). As a result, a positive empirical correlation between self-employment and risk willingness is difficult to interpret in a causal manner, and is instead likely to be confounded by intrinsic, personality-based risk willingness. For clean identification, one would ideally like to randomly assign labor-supply and tax-evasion opportunities to different workers. Because this is not feasible in the real world, we design a laboratory experiment where each subject participates in a labor task and then makes an investment decision. Subjects are then given an opportunity to respond to the outcome of the investment before paying taxes. The opportunity to respond to the outcome of the investment depends on the group to which subjects are randomly assigned: some subjects can evade taxes; some can supply extra labor; some can both evade taxes and supply extra labor; and some can neither evade taxes nor supply extra labor.

Our results show that future labor-supply and tax-evasion opportunities have different effects on risk-taking. The baseline group, which lacks opportunities for additional labor supply or tax evasion, invests 38% of their gross income into the risky

investment funds exclude money market mutual funds and indirectly held mutual funds and include all other types of directly held pooled investment funds, such as traditional open-end and closed-end mutual funds, real estate investment trusts, and hedge funds.

² To our knowledge, Benitez-Silva (2002) is the only paper to study the link between labor-supply flexibility and portfolio choice empirically. Gneezy and Potters (1997) study a different type of flexibility in a portfolio-choice experiment. Subjects in one group make their investment decisions for each period separately and receive feedback after each investment. Subjects in the other group make investment decisions for multiple periods simultaneously, and they only receive feedback for each block of investment instead of period-by-period evaluations. Their results show that the first group, which has greater rebalancing flexibility, expose their wealth to lower risk. Gneezy et al. (2003) find similar results in an investment market.

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