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OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE

Examination of the Adjudicative Guidelines

Appendix B Part 5
Adjudicative Guidelines Literature Review: the "Financial Considerations" Cluster

LEADING INTELLIGENCE INTEGRATION

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EXECUTIVE SUMMARY

Purpose

A review of current social science research was undertaken to provide evidence about the meaning and effectiveness of the Financial Considerations Guideline for making security clearance decisions. This White Paper reviews that evidence. This Guideline focuses on the risk value of evidence of problematic financial behavior.

Approach

The literature review covered a wide range of social science literature including espionage case studies, comparisons between caught spies and matched non-spies, counterproductive work behavior, white collar crime. Given the scarcity of research on national security behavior itself, other than espionage case studies, the primary strategy of this review was to evaluate research about financial risk factors in counterproductive or criminal work behavior that are analogous to security violation behavior. Such research evidence may provide reasonable inferences about financial considerations as antecedents of security violations.

Key Findings

- Evidence supports the general conclusion that problematic financial conditions are antecedents of security violations as well as other analogs of security violations such as counterproductive work behavior and white collar crime.
- Problematic financial conditions may be antecedents of security violation behavior in at least two ways.
    1. Financial problems create motives and incentives for engaging in security violations as a way of making money.
    2. People who are prone to financial problems tend to have dysfunctional personality attributes that also increase the risk of security violations.
- Dysfunctional personality attributes shown to be characteristic of people who exhibit problematic financial behavior and people who exhibit security violations as analogous behaviors include:
    - Low emotional stability (high neuroticism)
    - Low self-control / high impulsivity / high risk taking / high excitement-seeking
    - Low conscientiousness
    - External locus of control
    - Competitiveness
- Bankruptcy counseling has a lower recidivism rate, 19%-34%, than treatments for compulsive gambling, 92%.

- The Financial Consideration evidence focusing on indicators of risk for security violations does not capture the personal attributes leading to positive security behavior.

THE FINANCIAL CONSIDERATIONS CLUSTER

Guideline F. Financial Considerations

Introduction

This paper evaluates the social science research literature relevant to the effectiveness of the Financial Considerations Adjudicative Guideline focusing on individuals' financial behavior. This evaluation describes the extent to which research evidence provides rationales supporting or questioning the current meaning and use of this Guideline. In addition, potential modifications and alternatives are described where the research evidence points to such adjustments.

The social science evidence evaluated here focuses on understanding, explaining and predicting individual human behavior relating to US national interests and, more specifically, the protection of classified information. The purpose of this project is to evaluate social science evidence about the meaning and use of the Guidelines. That is, are the Guidelines effective tools for minimizing security violations and maximizing pro-security behavior? The questions being answered by this project are (a) "Does current social science evidence support the current meaning and use of the Adjudicative Guidelines?" and (b) "What changes does the evidence suggest to improve the meaning and use of the Guidelines?"

This project is not intended to evaluate support for the Guidelines based on policy considerations. This is a relatively minor important point for the Financial Consideration Guideline because policy arguments alone are likely to provide support for only two of the risk conditions captured by this Guideline. Evidence of illegal financial practices as noted in two risk conditions might, itself, be a sufficient basis for disqualification. The policy-based justification of such a Guideline condition may have no need for social science evidence about the predictive value of previous criminal behavior for future security violations. Nevertheless, this White Paper will take note where apparent rationales for the Guideline conditions are grounded in policy considerations and where social science evidence is also relevant.

The Financial Consideration Guideline

The Guideline addressed in this White Paper addresses the relatively risky forms of financial behavior in an individual's personal history. Social science evidence is directly relevant to the weight given to such evidence of financial behavior because the personal history evidence covered by this Guideline is not a direct manifestation of action against US national interests. Rather, this personal history evidence is better viewed as providing signs of underlying beliefs, motives, attitudes, dispositions and temperaments that may be predictive of future security violation behavior if the individual is granted or retains a clearance for access to protected information. Relevant social science evidence provides the best information about the prediction value such evidence has for future security risk.

In an effort to capture the extent to which social science evidence is relevant to each of this financial behavior Guideline, a table is presented below listing the conditions (evidence) within this Guideline that could raise security concerns as described in the Adjudicative Guidelines for Determining Eligibility for Access to Classified Information, ADR (2005). For each condition, the table also indicates whether the presumed supporting rationale for that condition rests primarily on social science evidence or primarily on an apparent underlying policy position or both. The judgment about the supporting rationale was made by the authors based on a review of the social science evidence and the nature of the condition. These judgments were not made by national security clearance officials or experts.

In this table, a supporting rationale based on policy considerations is judged to be important where the personal history events constitute an illegal behavior that violates the individual's legal/contractual/moral responsibilities toward the US or employers or other organizations. Policy alone may be sufficient to establish that clearances should not be granted especially where the action is comparable in intent and severity to security violation behavior. Such policy rationales may be based on the principle that a history of such criminal/unauthorized action constitutes an unacceptable risk due to the evident violation of trust.

In contrast, many conditions imply risk for security violation behavior on the assumption that the psychological and/or situational factors that gave rise to the condition will also increase the likelihood of security violations. The weight given to such conditions should depend to a great extent on the social science evidence supporting the assumed relationships between psychological and situations factors and security violation behavior. These science-dependent conditions associated with Guideline F are the primary focus of this White Paper.

It should also be noted that policy and evidence-based rationales are not mutually exclusive. The weight given to some conditions may be influenced by both the policy rationale as well as the social science evidence rationale.

Table 1 shows that all the potentially disqualifying risk conditions associated with Guideline F, Financial Considerations are at least partially dependent on a science-based rationale. Only two conditions, (d) and (g), appear to have a policy-based rationale, at least in part. These two conditions describe patterns of illegal financial behavior. Clearly, the US government, like private sector employers, has a strong policy interest in not placing person with a record of illegal financial behavior in positions of trust, responsibility and authority. All conditions are assumed to rely to some extent on an underlying assumption that financially responsible/illegal behavior is a sign of potential risk for future security violations. This weight given to this rationale and associated conditions depends on social science research showing evidence that such an assumption holds. This evidence could be direct evidence of the relationship between financial behavior and subsequent security behavior or indirect evidence that the psychological and situational attributes underlying financially irresponsible/illegal behaviors also are antecedents of security violation behavior.

Table 1. Supporting rationales for Guideline F, Financial Considerations.

Condition triggering security concern	Important Supporting Rationale	
	Evidence-based	Policy-based
(a) Inability or unwillingness to satisfy debts	X	--
(b) indebtedness caused by frivolous or irresponsible suspending and the absence of any evidence of willingness or intent to pay the debt or establish a realistic plan to pay the debt.	X	--
(c) a history of not meeting financial obligations	X	--
(d) deceptive or illegal financial practices such as embezzlement, employee theft, and other intentional financial breeches of trust.	X	X
(e) consistent spending beyond one's means, which may be indicated by excessive indebtedness, significant negative cash flow, high debt-to-income ration, and/or other financial analysis	X	--
(f) financial problems that are linked to drug abuse, alcoholism, gambling problems, or other issues of security concern	X	--
(g) failure to file federal, state or local income tax returns as required or the fraudulent filing of the same	X	X
(h) unexplained affluence, as shown by a lifestyle or standard of living, increase in net worth, or money transfers that cannot be explained by the subject's known legal sources of income	X	--
(i) compulsive or addictive gambling as indicated by an unsuccessful attempt to stop gambling, "chasing losses," , or other problems caused by gambling	X	--

The Approach Used in This Literature Review

As noted above, the overall purpose of this literature review is to describe and evaluate the extent to which the social science literature supports the current meaning and use of Guideline F. The approach taken to accomplish this purpose is defined by five features.

1. Prediction Perspective

This literature review adopts the prediction perspective of social science. By this perspective, a Guideline is viewed as related to security behavior to the extent there is evidence that the behaviors targeted by a Guideline *predict* future security behavior. This prediction perspective underlies the large majority of behavioral social science research investigating relationships between psychological attributes and outcomes. Evidence of prediction is the primary type of evidence used to infer or conclude that a particular psychological attribute leads to or causes a subsequent outcome. However, evidence of prediction does not require empirical evidence. Prediction may be demonstrated by both empirical data as well as compelling, plausible, theoretically sound conceptual arguments. Since there is virtually no direct empirical evidence about the predictive relationship between the Financial Considerations Guideline and subsequent security behavior, this review will focus primarily on indirect evidence of prediction that is sometimes empirical and sometimes conceptual.

2. Scope of Security Behavior

As with all the White Papers produced in this project, a critical consideration is the scope of security behavior to be targeted by the literature search and review. The guidance surrounding the use of the Financial Considerations Guideline clearly identifies two forms of targeted security behavior. First, as with all 13 Adjudicative Guidelines, the Guideline F is designed to identify individuals who pose too great a risk for security violations if given responsibility for classified information or technology. In this regard Guideline F should operate to "select out" individuals who are too risky. However, Guideline F, like all other Guidelines, is also applied so as to award clearances to people who are reliable, trustworthy and having good judgment. These people are expected to demonstrate positive security behavior.

Negative Security Behavior Only

In general, the guidance surrounding the meaning and use of the Guidelines (see ADR 2005) appears to view these two forms of security behavior – (a) security violations and (b) reliability, trustworthiness and good judgment – as opposite ends of the same continuum of security-related behavior. This view implies that by disqualifying those who are too risky, the remainder who are awarded clearances will be reliable, trustworthy and of good judgment. The underlying assumption for this perspective is that the same psychological and situational factors explain behavior at both ends of this continuum. For example, if lack of self-control contributes to security violations, then self-control contributes to reliability, trustworthiness and good judgment. Or, more specifically, if unexplained wealth is a risk factor for security violations then the absence of unexplained wealth is an indicator of reliability, trustworthiness and good judgment. But substantial research in workplace behavior (E.g., Miles, et al, 2002; Dalal, 2005) shows that positive and negative workplace behaviors are not likely to be opposite ends of the same continuum. While some of the same psychological and situational factors drive both behaviors, other factors differ between the two types of behavior. This evidence indicates that one cannot assume the absence of negative workplace behavior implies the presence of positive behavior.

The general point that the absence of negative evidence does not predict positive outcomes is perhaps especially true for high risk irresponsible/illegal financial behavior, which represents a relatively extreme form of negative behavior, particularly in an organizational context. The absence of such extreme negative behavior is not likely to be a reliable indicator of positive behavior, especially unusually positive behavior. In the context of national security, the absence of a history of irresponsible/illegal financial behavior cannot be assumed to indicate future reliable and trustworthy behavior or good judgment. Perhaps for this reason, the social science literature that addresses the relationships between problematic financial behavior and future behavior virtually always focuses on negative future behaviors. As a result, in the domain of problematic financial behavior, we have found virtually no research that addresses its relationship to future *positive* security behavior. For this practical reason, the research reviewed in this White Paper addresses only negative forms of security behavior and analogs to security violations.

Analogs to Security Behavior

Little social science research addresses national security behavior directly. But significantly more research investigates other workplace behaviors that are similar to security behavior in certain important ways. This White Paper reports social science research about workplace behaviors that are analogous to security behaviors so that insights about security behavior may be inferred from these "neighboring" domains of work behavior.

All four White Papers in this project report evidence about work behaviors that are close analogs to security behavior. For the purposes of these White Papers, a domain of work behavior is regarded as a close analog to security behavior if it is: (a) in an organization context; (b) counter-normative in its negative form; (c) intentional (voluntary); and (d) directed toward a person or entity for harm or for good. It should be noted that, for this project, "betrayal of trust" is not a necessary feature of an analog to security behavior. There is one primary reason for this. As a practical matter, few other work behaviors share a "public trust" obligation similar to that of national security behavior. Perhaps only public service, public safety, and some categories of health care work share a "public trust" obligation similar to that of national security behavior where the public's national safety may be at stake.

Research about analogs to security behavior is reviewed below in the sections reporting Level 2 and Level 3 Evidence. Level 2 evidence is reported for two analogs, counterproductive work behavior (CWB) and, in an N=1 case study, industrial espionage. Level 3 evidence was located for two analogs, CWB and white collar crime (WCC).

3. Three Levels of Evidence

As with the other White Papers produced in this project, this review and evaluation of social science research related to the financial behavior Guideline will review three levels of evidence. These three levels of evidence are described in detail in the Foundations paper that accompanies the four White Papers in this project.

Level 1 Evidence

Level 1 evidence addresses direct relationships between Guidelines-based behaviors such as financial behavior and the security-related behavior targeted by the Guidelines. For example, Thompson (2003) compared caught spies to non-spies on past financial histories. Although this is not a true experiment, it does evaluate the extent to which spies differed from non-spies on Guidelines-based behaviors. Little Level 1 evidence is available for the Financial Considerations Guideline. The primary Level 1 sources are Thompson (2003), Herbig (2008) and Stone (1992).

Level 2 Evidence

Level 2 evidence addresses relationships between Guidelines-based behaviors like financial history and outcome behaviors that are not themselves security behaviors but are workplace behaviors that are analogous to security behaviors. For example, evidence showing that corrupt police are more likely to have histories of large debt than non-corrupt police would be Level 2 evidence. Such evidence links past financial behavior – a Guidelines-based behavior – to an analog to security violations, dysfunctional police behavior. While Level 2 evidence does not provide direct evidence about security behavior, it does have implications for security behavior to the extent that the analog behavior has important features in common with security behavior. Several forms of analog behavior have been linked to past financial history. Somewhat more Level 2 evidence is available than Level 1 evidence for Guideline F.

Level 3 Evidence

Level 3 evidence addresses relationships between psychological and/or situational factors that underlie Guidelines-based behaviors and outcome behaviors that are analogs to security behavior. For example, evidence showing that lack of self-control (a psychological antecedent of irresponsible financial behavior) is associated with workplace theft (an analog to security violation behavior) is Level 3 evidence. Considerably more Level 3 evidence is available for Guideline F than either Level 1 or Level 2 evidence.

In spite of the apparent distinctiveness between the three levels of evidence, not all studies clearly belong to one category or another or, for that matter, any of the three categories. For example, financial misbehavior such as misuse of company credit cards may be considered an example of counterproductive work behavior. If such financial misbehavior is considered evidence of Financial Considerations then studies investigating such behavior may be classified as either Level 1 or Level 2 evidence depending on the outcome measures – security violations or analogs to security violation behavior – included in such studies. However, if such financial misbehavior is considered as simply one manifestation of counterproductive work behavior then evidence of such financial misbehavior would be regarded as an analog to security violation behavior. In that case, such studies would be classified as either Level 2 or Level 3 evidence. For the purposes of this White Paper, financial misbehavior measured within the context of other counterproductive work behaviors such as theft or disloyalty is treated as an analog to security violation behavior.

4. Mitigator Evidence

Following the Level 1, 2 and 3 evidence sections a small amount of evidence is reported about potential mitigators of Financial Considerations evidence. For Financial Considerations, mitigator evidence would demonstrate in some fashion that certain Financial Considerations issues, if present in an individual's financial history, should be given less weight as a risk factor for future security violation behavior. For example, research has reported that people who have been counseled for financial misbehavior leading to bankruptcy are less likely to repeat such misbehavior. This would be evidence supporting the decision that previous bankruptcy evidence should be mitigated (i.e., assigned less risk weight) by companion evidence that the person successfully completed bankruptcy counseling. The thorough literature search about financial misbehavior identified relatively little evidence about mitigators, in contrast to the literature on criminal behavior.

It should also be noted here that no mitigator evidence was directly related to the likelihood of future security violation behavior. All the mitigator evidence reported here relies on the assumption that indicators of reduced risk of future financial misbehavior imply a similarly reduced risk of future security violation behavior. No mitigator evidence was located that tested this assumption.

5. Effect Size Measures

Where possible and meaningful, this White paper reports statistical estimates of the size of important effects relating to the magnitude of an antecedent's effect on a security violation behavior or an analog of the same. Unfortunately, empirical studies can vary considerably in the statistics used to describe the size of an effect. Such statistics may include effect size measures such as frequencies, percentages, mean differences, correlation coefficients, d-values, and several others. Also, many studies provide little or no information about effect size.

This can become a burden in any review of the literature, especially to the person unfamiliar with a variety of statistical techniques. To reduce reader burden and facilitate understanding, the results of individual studies were translated, wherever possible, into a common statistic—Pearson's r—using the formulas provided by Rosenthal and Rosnow (1991). Pearson's r provides a measure of the strength and direction of a relationship between two variables. It can range from -1.00 to 1.00. A negative Pearson r value indicates that an increase in one variable is associated with a decrease in another, while a positive Pearson r value indicates that an increase in one variable is associated with an increase in the other. It is important to remember that a significant relationship between two variables does not mean that one variable causes change in another. Association can be an important precondition of causality but such inferences must be made cautiously, tempered by the reasonable, alternative explanations for the relationship.

In addition to the direction of a relationship between two variables, Pearson's r provides an indication of the strength of the relationship (i.e., how much a variable varies along with changes in another variable). The relationship between two variables gets stronger as it approaches the *absolute* value of 1.00. A value of -1.00 is indicative of a perfect negative relationship, while a value of +1.00 indicates a perfect positive relationship. In either case, as a Pearson r gets closer to 0, the relationship gets weaker. For the social sciences, Cohen (1992) proposed *absolute* Pearson r values of .10-.23, .24-.36, and .37 or larger as "weak," "moderate" and "strong" relationships, respectively.

Some studies do not provide sufficient information to provide any effect size measure. This is moderately common in this White Paper on Financial Considerations. While most effect sizes reported here are expressed as Pearson's r values, a smaller number are expressed as d-values and rho (ρ).

The vast majority of studies allowing a report of effect size measures are included in the section reporting Level 3 evidence. In the Level 3 section three different measures will be used throughout this report. The most common measure is Pearson's *r*, as described above. A similar measure is *d*, which represents the standardized difference between the means, or average scores, of two groups. Values of *d* of .20 are considered small, .50 medium / moderate, and .80 large (Cohen, 1988). Rho (ρ) is the last measure that gives information about the strength of bivariate relationships used in this report. Rho is simply an estimate of a true r value, unaffected by measurement error or other study artifacts. It is usually reported in meta-analytic studies. It is interpreted in the same manner as Pearson's *r*.

Setting The Stage: Incidents of Financial Considerations Issues in SSBI Investigations

Castelda (2009) and the Foundations Paper (2009), submitted as a precursor to these White Papers, presented and analyzed issues identified in two samples of Single Scope Background Investigations (SSBI) open in 2008. The larger Sample A (N = 4,247) included issues sourced from electronic data providers but not self-report issues from polygraph exams. Conversely, Sample B (N = 1,437) included issues sourced from self-report polygraph exams but not from electronic data providers. Both samples included issues derived from interview sources and the usual range of background records such as police and employment records.

Two main points can be made about the frequency of Guideline F issues in these two samples. First, Guideline F produced one of the highest numbers of investigative issues among all 13 Guidelines. In Sample A, Guideline F yielded 846 issues, which was second only to the 2,039 Foreign Influence issues. A similar patter was observed in Sample 2. Guideline F yielded 420 issues, which was exceeded only by Criminal Conduct, Drug Involvement, and Foreign Influence. Perhaps more importantly, if only important issues (i.e., “significant,” “serious,” or extremely serious”) are counted, Guideline F yields noticeably more issues in Sample B than any other Guideline. The next nearest Guideline, J (Criminal Conduct), yields 95 important issues. The Guideline with the third most frequent important issues was Guideline E, Personal Conduct, with 65.

The second point is that Financial Considerations is the Guideline that most overlaps with other Guidelines, when considering only important issues. That is, more than any other Guideline, people who have important Financial Consideration issues also have important issues on other Guidelines. Nevertheless, while Guideline F is the most overlapping Guideline, no Guideline including Guideline F, has much overlap with other Guidelines. Of the 113 people who have important issues on Guideline F, only 12 of them, at most, also have important issues on any other Guideline.

LEVEL 1 EVIDENCE

Level 1 evidence can be empirical or conceptual and provides information about the predictive relationship between the types of behaviors gathered in the Guideline F investigation process and the security behavior targeted by the adjudication process. This is the form of research evidence that is most directly relevant to security behavior context. There are three sources of Level 1 evidence for Guideline F. Various non-experimental analyses of espionage case studies show a link to financial factors. In addition, Thompson (2003) and Stone (1992) conducted quasi-experimental studies showing a linkage between espionage and financial factors. These studies constitute Level 1 evidence because they associate behavior of the type gathered by clearance investigations for Guideline F with security violation behavior.

Methodological Evaluation of the Three Major Studies

Three studies represent the sources for Level 1 evidence about Financial Considerations. Herbig (2008) accumulated individual case study evidence from virtually all known cases of espionage directed against the US from 1947-2007. Similar case study analyses of many of these same espionage cases have also been reported by Herbig and colleagues at different times (Heuer & Herbig, 2006; Kramer, Heuer, & Crawford, 2005). Stone (1992) reported an complex correlational analysis of coded information about 100 of the same caught spies as Herbig reported about. Thompson (1992) compared 40 of these caught US spies to 40 matched non-spies (members of the US intelligence community) on a number of attributes related directly to the Adjudicative Guidelines. Each of these Level 1 studies has unique methodological characteristics that limit the extent to which their results support firm conclusions about the prediction of security violation behavior in the form of espionage. Before reporting their results, the following paragraphs briefly evaluate the methodological quality of these studies. Based on this evaluation, Thompson's study is believed to provide the most persuasive evidence linking financial history to later espionage.

Herbig (2008)

Herbig's study focuses on the characteristics of caught spies. The purpose of Herbig's study was to improve our understanding of individual who have chosen to engage in espionage. The purpose was not to identify the characteristic that are predictive of future espionage. This limitation is largely due to two primary factors. First, all the information reported about the caught spies was gathered after the fact and does not represent information that was known at the time the spies were evaluated for security clearances. Indeed, many of the caught spies held no clearance. Second, Herbig did not compare spies to non-spies. There is no method within Herbig's analysis to know which characteristics distinguish spies from non-spies. For that reason, Herbig's methodology does not allow conclusions about the prediction of future espionage behavior. Nevertheless, Herbig's analyses are extraordinarily useful in that they provide the clearest available evidence about the characteristics of spies and how those profiles have changed over the past six decades.

Stone (1992)

Like Herbig, Stone's study analyzed characteristics of caught spies without comparing spies to non-spies. The 100 spies included in Stone's analyses appear to have been sampled from the entire known population of caught spies from 1945 through 1989, approximately. There are two primary advantages of Stone's methodology compared to Herbig's. First, Stone attempted to gather information about spies' characteristics that could have been known at the time these individuals might have applied for clearances. Second, Stone used a systematic, quantitative method of analysis, canonical correlation, for aggregating the information about the spies, whereas Herbig relied on qualitative and counting methods. Notwithstanding these strengths, two major weaknesses greatly limit the contribution and interpretability of Stone's results. First, Stone himself derived the characteristics of each spy from his own analysis of their personal histories from various sources. No effort was made to confirm the meaning or accuracy of Stone's assessments. Second, the statistical methodology of canonical correlation is likely to produce unstable results from the tetrachoric correlations used by Stone. These correlations likely were based on highly skewed dichotomous data. As Stone acknowledged, the incidents that indicated the presence of a characteristic, say for example, sexual misconduct, were "extremely small (in) number." That is, for each of the 10 characteristics he measured, the vast majority of spies showed no indication of the characteristic in question. This is typical even of SSBI investigations so this limitation is not unique to Stone. Nevertheless, this feature of the data, extreme skew, is known to lead to unstable correlation analyses such as canonical correlation. Results from Stone's study are reported here in spite of these limitations because they can provide some high-level insight about central themes in his dataset.

Thompson (2003)

Thompson's dissertation compared the characteristics of 40 caught spies to 40 matched, non-spies. Although the characteristics were assessed after the fact, like Herbig, the distinctive strength of Thompson's method was that spies were compared to non-spies on the same characteristics. This quasi-experimental design provides the most persuasive information currently available about factors that distinguish spies from non-spies. For this reason, Thompson's results have the strongest implications for the personal attributes most likely to be predictive of future security violation. However, even Thompson's study is not a true experiment so causal inferences cannot be drawn about characteristics that predict security violations. Thompson's study is also unique in that the personal characteristics are self-reported. But it is not clear whether this self-report feature implies that the assessment of the personal characteristics is to be preferred to Herbig and Stone's. Our own professional judgment is that

Thompson's self-report methodology is preferable to Stone's author-based methodology. But we are unsure of the relative strengths of Thompson's assessment method compared to Herbig's.

Review of Evidence

Individuals may be motivated by need or greed to commit espionage. Case studies of known spies have often found money to be one of the motives behind the decision to engage in spying (Herbig, 2008; Heuer & Herbig, 2006; Kramer, Heuer, & Crawford, 2005).

Stone (1992) found that money was considered to be one of the most important motivations for individuals to spy, followed by ideology and disaffection. Stone also found that money as a motivation was moderately related to the adjudication concern of financial matters. Two motivating factors related to finances for espionage are experiencing financial problems and having debt due to gambling (i.e., to pay off debts, finance gambling addiction) (Kramer et al., 2005). Heuer and Herbig (2006) found in their analysis of US spies since the late 1940's that money (defined as need or greed) was one of the motivating factors in 69% of the cases and it was apparently the sole motive in 56%.

Herbig (2008) compared spies from three different time periods (1947-1979, 1980-1989, and 1990-2007) to note how the profile of espionage has changed over time. Herbig concluded that money remains a common motive for espionage but, since 1990. it has not been a primary motive. Herbig assessed the frequency of spies who committed financially motivated espionage out of need or greed. Debt (i.e., need) was the more common motivation for espionage with 36%, 40%, and 30% of spies had this motive for each time period, respectively. Greed was a less cited motivation on the financial considerations guideline (6%, 11%, and 11% for each time period, respectively). Herbig also assessed the frequency of spies who had issues of security concern on this guideline. In each of the three time periods, approximately 12% of the spies lived a financially irresponsible lifestyle and 3% - 5% of the spies declared bankruptcy.

Thompson (2003) conducted a study in which 40 spies where matched based on demographic information (gender, age, military status, marital standing, and educational status) with 40 members of the intelligence community and who were presumed to be non-spies. Thompson compared the spies and non-spies on the factors that could make an individual more vulnerable to or inoculate against committing espionage. Financial issues were one of the vulnerability factors studied and were defined as bankruptcies, repossession, delinquencies over 90 days, foreclosures, or actions against the subject in a financial lawsuit. Thompson found that almost half of the spies (19 of 40) had financial issues compared to only ten percent of the non-spies (4 of 40 non-spies). The spies were nearly five times more likely to have financial issues than the non-spies.

Overall, the Level 1 evidence suggests that financial issues are a common risk factor for security violation behavior. However, none of the Level 1 studies demonstrates the accuracy with which past financial history predicts future security violation behavior.

LEVEL 2 EVIDENCE

Level 2 evidence provides information about the relationship between the types of financial history behaviors gathered in the Guideline F investigation process and future analogs to security violation behavior. Only two Level 2 studies were located. One related financial history to counterproductive work behavior; the other related financial need to industrial espionage.

Oppler, Lyons, Ricks and Oppler (2008) investigated the relationship between previous financial history and workers' financial misbehavior in their work organization. While these indicators of workplace financial misbehavior, themselves, would be considered manifestations of Guideline F financial history, in this study they were treated as the outcome measures to be predicted by financial history prior to employment in the work organization. These workplace financial misbehavior indicators are classified in industrial-organizational psychology as counterproductive work behavior (CWB). CWB is "any intentional behavior on the part of an organization member viewed by the organization as contrary to its legitimate interests" (Sackett, 2002, p. 5).

Oppler et al. (2008) studied the financial behavior of 2,519 federal government agency employees who had previously completed the Questionnaire for Public Trust Positions (SF-85/86). Oppler et al. used two items from SF-85/86 to measure employees' previous financial history ('In the last 7 years, have you, or a company over which you exercised some control, filed for bankruptcy, been declared bankrupt, been subject to a tax lien, or had legal judgment rendered against you for a debt?' and 'Are you now over 180 days delinquent on any loan or financial obligation?'). These two elements of personal financial history represent the types of financial history gathered under Guideline F. Oppler et al. hypothesized that employees who reported previous financial problems would be lower on the self-control dimension of conscientiousness (a personality trait). This lower level of self-control would lead to a variety of CWBs related to workplace financial decisions such as not paying debts, theft, misusing credit cards and funds, and soliciting or accepting anything of value that is illegal. Workplace incidences of financial-related CWBs were collected and maintained by the government for all their current employees including these study participants. This database of CWBs included both past and "sustained" cases. The authors categorized these employees by placing each employee into one of four possible groups: no financial history concerns and no cases of financial CWB, no financial history concerns and at least one case of financial CWB, at least one financial history concern and no cases of financial CWB, and at least one financial history concern and at least one case of financial CWB. They found that an individual with financial history concerns (i.e., who lacks self-control) was more likely to engage in counterproductive work behaviors related to finances. Of the 469 employees with financial history concerns, 31.3% (n = 147) had at least one financial CWB incident. Of the 2,050 employees with no financial history incidents, only 18.1% (n=371) had any financial CWB incidents. Table 2 shows all frequencies. This pattern of relationship corresponds to a phi coefficient of .13. (Phi is an estimate of Pearson's r with dichotomous data.)

Table 2. Frequencies of Financial History and Counterproductive Financial Work Behaviors

At least 1 Financial History incident	At least 1 Financial CWB		Total
	No	Yes	
Yes	322	147	469
No	1679	371	2050
Total	2001	518	2519

This evidence provides modest support for the conclusion that a history of previous financial problems is predictive of future counterproductive work behavior in the form of workplace financial misbehavior. While Oppler et al. proposed that this relationship is mediated by low self control, they provided no evidence of this explanation.

Similar to Herbig's (2008) Level 1 analysis of case studies of national espionage, Ferdinand and Simm (2007) investigated three cases of industrial espionage. This is Level 2 evidence because industrial espionage is not, itself, an example of national security behavior. Industrial espionage is defined as the efforts by an organization with no direct government involvement to collect information, appropriate trade secrets, and steal knowledge (Ferdinand & Simm, 2007). The authors considered economic and industrial espionage to be white collar crime, which is an analog of security violation behavior for the purposes of this White Paper. The case of Dr. Lee is the most relevant to Guideline F of the three reviewed cases because the employee committed espionage in an organizational context by selling confidential information to a competing organization. Dr. Lee received $160,000 over eight years from a competitor to spy on his employer. During these eight years, Dr. Lee provided trade secret information to the competitor. It was later confirmed that Dr. Lee spied out of a desire for financial security (Business/CIS Education Statewide Advisory Committee, 2004).

This individual case study is reported here even though its findings provide no persuasive evidence of a predictive relationship between financial need/greed and subsequent espionage behavior. It is briefly reported primarily to highlight the lack of compelling predictive evidence linking financial history to subsequent espionage behavior. No other Level 2 evidence was located in the extensive literature search for studies about financial antecedents of analogs to security violation behavior.

LEVEL 3 EVIDENCE

Level 3 evidence provides information about the relationships between analogs to security violation behavior and personal attributes that underlie Guideline F behaviors. This literature search located two analogs to security violation behavior, counterproductive work behavior (CWB) and white collar crime, for which there is evidence linking these analogs to attributes underlying financial misbehavior. Counterproductive work behavior is negative extra role organizational behavior. Examples of counterproductive work behavior include sabotage, theft, stealing, and withdrawal (e.g., absenteeism, lateness, and turnover). White collar crime is defined as "those illegal acts which are characterized by deceit, concealment, or violation of trust and which are not dependent upon the application or threat of physical force or violence. Individuals and organizations commit these acts to obtain money, property, or services; to avoid the payment or loss of money or services; or to secure personal or business advantage." (USDOJ, 1989, p. 3). Some examples of white collar crime include embezzlement, fraud, counterfeiting, antitrust violations, forgery, money laundering, bribery, insider trading, and misuse of funds.

Both CWB and white collar crime satisfy the criteria for analogs to security violation behavior because they are counter-normative workplace behaviors intended to cause harm to persons or organizations.

Level 3 evidence is organized around two categories of psychological variables underlying Guideline F behaviors: personality traits and stress. The literature search identified several personality traits shown to be antecedents of a variety of forms of financial misbehavior. Before summarizing the research that identified these traits, a brief overview of the meaning of personality traits is provided.

Personality

An Overview of Personality Traits

Personality traits have at least three important characteristics. First, they are continuous. Personality psychologists conceive of people as situated along a given trait in a relatively normal distribution, with a bulk of people falling toward the center and fewer lying at the extremes (McAdams, 2001). Traits are also bipolar. The poles of a trait continuum are marked by descriptors opposite in meaning. For example, the trait of sociability is characterized by adjectives such as outgoing or talkative on the high pole and reserved or shy on the low pole. As with other traits, most of the population falls toward the middle of this continuum, with very few people described as extremely outgoing or painfully shy.

A second important characteristic of personality traits is they describe, and are thought to explain or cause, stability in thoughts, feelings, and behavior. Personality researchers have found that individuals' personalities are remarkably stable over the course of their lives. This stability is due, at least in part, to the genetic basis of personality traits, which researchers have estimated at around 40% (Dunn & Plomin, 1990). Heritability estimates do vary, however, with the trait under consideration. Estimates can range from 37% to 65% (Jang, Lively, & Vernon, 1996; Tellegen, Lykken, Bouchard, Wilcox, Segal, & Rich, 1988).

Though personality is consistent over the course of one's life, there is evidence for at least some change, with the greatest stability reached around age 30 (Costa & McCrae, 2006). For example, research has shown that people become more responsible and demonstrate higher levels of self-control as they get older (Helson & Moane, 1987). Such malleability is likely due to environmental influences which Dunn and Plomin (1990) estimate to be in the neighborhood of 40%. While a person's standing on a trait may change slightly over the course of his life, his ranking relative to others in his own age cohort is quite stable (McAdams, 2003). That is, a person high in responsibility will remain high relative to others in the cohort, even as the entire cohort population experiences change in this trait.

A third characteristic of traits is their structure or organization. Over the past few decades, personality researchers have sought to identify the most fundamental traits. This work shows that traits can be organized hierarchically, with the narrowest and most specific traits at the bottom of the hierarchy and the broadest and most general traits at the top (e.g., Costa & McCrae, 1992; Goldberg, 1990; Tellegen, 1985). To illustrate, the hierarchical organization of Extraversion is presented in Figure 1.

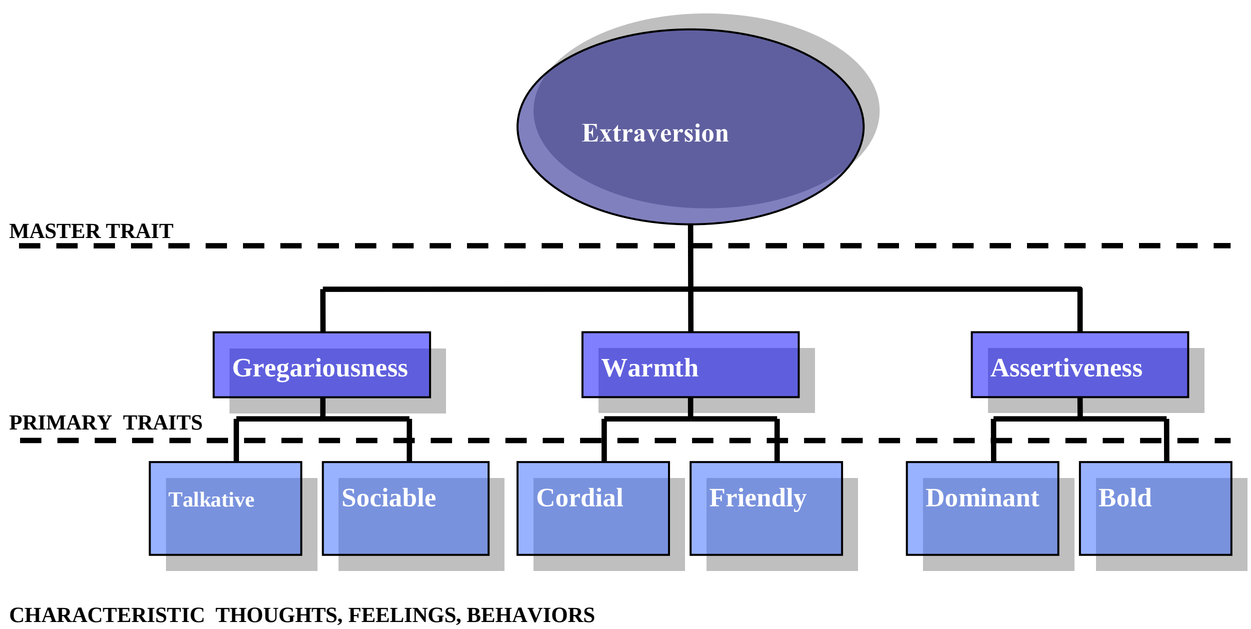

Figure 1. Structure of Personality Traits: The Example of Extraversion

At the bottom of this hierarchy are *Characteristic Thoughts, Feelings and Behaviors* such as talkative and dominant. Typically, characteristic thoughts, feelings, and behaviors are captured by items that a person uses to describe themselves or significant others. For example, a person may be asked to respond to a survey item reading “I am happiest when I am alone” by indicating the extent to which it describes him or her. At the next level are *Primary Traits*. Primary Traits represent clusters of characteristic thoughts, feelings and behaviors. These clusters are based on underlying commonalities among characteristic thoughts, feelings, and behaviors. For example, a person describing himself as talkative is also likely to indicate that he prefers social interaction and that he does not like to be alone. At the next level are *Master Traits* which are clusters of primary traits. As with clusters of characteristic thoughts, feelings, and behaviors, these clusters are based on underlying commonalities. With Master Traits, however, these groupings are based on commonalities among primary traits. For example, a person that describes herself as high in the primary trait of Gregariousness is also likely to describe herself high in the primary traits of Warmth and Assertiveness.

While the hierarchical structure of personality has been replicated consistently across studies, the number and content of master and primary traits has been the subject of considerable debate. Some personality psychologists have found evidence for three master traits (e.g., Eysenck, 1967; Tellegen, 1985), while others have found evidence for five (Costa & McCrae, 1992). There has also been disagreement about the number of primary trait dimensions. Tellegen (1985) has found evidence for 10 primary trait dimensions, while Costa and McCrae (1992) have found evidence for 30. While there has been some controversy over the number and content of fundamental traits, empirical comparisons of alternative taxonomies have indicated that the differences are more apparent than real. Research indicates that major personality taxonomies overlap considerably, and differences are due primarily to measurement issues, such as differential emphasis on trait content or the blending of traits more clearly delineated in alternative taxonomies (Church, 1994; Costa & McCrae, 1995).

Personality Traits Relevant to Financial Misbehavior

A review of the available literature identified several personality traits linked to problematic financial behavior that would be targeted by Guideline F investigations. Research linking three categories of Guideline F behavior to underlying personal attributes was found. These categories were compulsive buying/shopping, indebtedness, and compulsive gambling.

Compulsive Buying / Shopping Behavior

Research has identified a number of personality attributes that are associated with compulsive shopping/buying behavior. In their study of the buying/shopping behavior of college students Mowen and Spears (1999) found the low *Conscientiousness*, high *Neuroticism*, and high levels of *Agreeableness* were associated with compulsive levels of buying / shopping behavior likely to incur unmanageable levels of indebtedness. Similarly, Rose (2007) demonstrated that low impulse control (*Self-Control*) was associated with compulsive buying behavior (r =. -29). Rose (2007) argued that self-regulatory processes such as impulse control are central to harmful or risky behavior such as compulsive buying/shopping.

Indebtedness

Research on indebtedness is closely related to the research on compulsive shopping/buying behavior since those behaviors, at least in their compulsive form, increase the risk of unmanageable indebtedness. In a sample of residents in the United Kingdom, Livingstone and Lunt (1992) found that external *Locus of Control* was associated with higher levels of personal debt. Similarly, Perry and Morris (2005) found that individuals with an external locus of control were less likely to exhibit responsible financial behavior (e.g., save money, follow a budget, and control spending). Perry and Morris (2005) also found that locus of control mediated two types of relationships: (a) the relationship between financial knowledge and responsible financial management behavior, and (b) the relationship between income and responsible financial management behavior. Perry (2008) showed that individuals with an internal locus of control had more financial knowledge and higher credit scores compared to individuals with an external locus of control. Finally, evidence shows that *Self-Control* is also related to debt. Norvilitis, Merwin, Osberg, Roehling, Young, and Kamas (2006) studied the reasons for college students to be in debt and found that the inability to delay gratification (low Self-Control) was related to higher levels of credit-card debt.

Compulsive Gambling

Gambling research has similarly identified several related personality attributes as antecedents to compulsive, dysfunctional levels of gambling behavior. Ledgerwood and Petry (2006) evaluated a sample of pathological gamblers and showed them to be high on *Neuroticism*. In addition, their researches showed that Neuroticism predicts early discontinuation of treatment for gambling and gambling relapses in pathological gamblers. Echeburúa, Fernándo-Montalvo, and Báez (2001) found that the 14.5% of gamblers who relapsed within a year following treatment had higher levels of Neuroticism than did the gamblers who did not relapse in this time period.

Petry (2001) found that pathological gamblers are likely to be relatively high on *Impulsivity* in a sample of treatment-seeking pathological gamblers. (Note, Petry also found that Impulsivity was related to concurrent drug problems.) Leblond, Ladouceur, and Blaszczynski (2003) compared treatment seeking pathological gamblers who completed treatment (N = 69) with those who dropped out of treatment (N = 43). Impulsivity was related to the failure of treatment for gamblers such that the gamblers who dropped out were more impulsive (Leblond et al., 2003). Alessi and Petry (2003) examined the relationship between Impulsivity as a personality trait and pathological gambling severity in a sample of treatment seeking gamblers (N = 62). Impulsivity and gambling severity both predicted impulsive behavior, with gambling severity being 1.4 times more predictive of impulsive behavior than was Impulsivity.

A number of research efforts have shown a link between *Self-Control* and compulsive gambling behavior. Heuer (1992) found that compulsive gamblers tend to gamble more frequently than they had intended to gamble, reflecting a lack of self-control. Pratt and Cullen

(2000) conducted a meta-analysis study focusing on the relationship between Self-Control and a variety of risky behaviors including gambling as well as other risky behaviors including smoking, drinking, driving too fast, and unprotected sexual relationships. Their meta-analysis results showed a moderately strong relationship between Self-Control and the propensity to engage in risky behavior ($\rho = .35$, $k = 20$). This pattern of results showing Self-Control as an antecedent of various risky behaviors supports the substantial literature in criminal behavior that low Self Control is a significant factor in a general "deviance proneness" syndrome identified by Gottfredson and Hirschi (1990) leading to risky, harmful, criminal, and counter-normative behavior.

Based on case analyses of known American spies and white collar criminals, Heuer (n.d.) concluded that individuals high on *Risk-Taking* were more likely to engage in risky, irresponsible, and/or impulsive behaviors including gambling. One study claimed a link between *Trait Competitiveness* and compulsive gambling. Heuer, (1992) argued that highly competitive individuals are more likely to be compulsive gamblers compared to less competitive individuals. Compared to the other studies cited above in this section on relevant personality traits, these two studies by Heuer provide less compelling evidence of the importance of Risk-Taking and Trait Competitiveness because neither attribute was measured in the study samples. Nevertheless, the literature search for Level 3 evidence did include searches for evidence linking Risk-Taking and Trait Competitiveness to analogs of security violation behavior.

From this evidence about personality traits relevant to Guideline F behavior, literature searches were conducted for prediction evidence for Conscientiousness, Neuroticism, Agreeableness, Locus of Control, Self-Control / Impulsivity, Risk-Taking and Trait Competitiveness. For each of these personality traits that underlie Financial Considerations behaviors, research is summarized below describing its antecedent relationship to either of two analogs of security violation behavior, CWB and/or white collar crime.

Conscientiousness

Conscientiousness is a tendency to be dutiful, achievement-oriented, and be disciplined. Individuals who are low on conscientiousness tend to be careless, unorganized, spontaneous, and lack self-discipline.

Counterproductive Work Behavior (CWB)

Of the Big Five personality traits (Conscientiousness, Agreeableness, Neuroticism, Extraversion, and Openness to Experience), Sackett & Devore (2001) showed Conscientiousness to have the strongest relationship to CWB in their comprehensive review of 83 studies that had investigated the relationship between CWB and Conscientiousness. Across all reviewed studies, the average relationship between CWB and Conscientiousness was $r = -.23$. Given the manner in which measures were coded in this review, this relationship indicated that more conscientious workers demonstrated less counterproductive behavior. This relationship appeared to depend primarily on the dependability (tendency to be reliable and someone that others can trust) and achievement (tendency to strive to be successful in life) facets of Conscientiousness. Individuals low on dependability or achievement are more likely to engage in CWB. Cullen and Sackett (2003) also found a relationship between the Dutifulness facet of Conscientiousness and CWB. Dutifulness is the tendency to meet obligations and act in accordance to rules and/or norms. They argued that the subjective norm component of behavioral intentions will be weakened for individuals low on the Dutifulness facet of Conscientiousness and these individuals will be more likely to engage in CWB.

White Collar Crime

Collins and Schmidt (1993) conducted a quasi-experimental study to determine if personality, integrity, and biodata (e.g., a measure of life history experiences) measures could discriminate between white collar criminals and non-offenders. They constructed a sample of convicted white collar criminals and an approximately matched sample of managers who were not white collar criminals. They found that white collar criminals scored lower on the Socialization and Responsibility dimensions of Conscientiousness from California Personality Inventory (CPI) scales than did non-offenders in both the validation ($d = 1.00$ and $d = .87$, respectively) and cross-validation samples ($d = 1.02$ and $d = .57$, respectively). Compared to non-offenders, offenders had a greater tendency to be irresponsible, lack dependability, and disregard roles and social norms.

Neuroticism (Emotional Stability)

Neuroticism is a tendency to easily experience unpleasant emotions, such as guilt, anger, anxiety, and depression. Neuroticism and emotional stability are two names for the same construct and represent opposing ends on a single continuum. Neuroticism represents the negative aspect of this trait while emotional stability represents the positive aspect. Individuals who are high on neuroticism/low on emotional stability tend to be emotionally reactive, more likely to interpret situations as threatening, and vulnerable to stress.

Counterproductive Work Behavior (CWB)

In their comprehensive review of research on CWB and personality antecedents Sackett and Devore (2001) concluded that Neuroticism was related to CWB with a low effect size ($r = .14$). This conclusion was based on summary analyses of 24 studies of the Neuroticism – CWB relationship. Similarly, Martinko, Gundlach, and Douglas (2002) found that individuals high on Neuroticism may be more likely to show a hostile attribution style, in which “individuals attribute failures to external stable and intentional causes” (p. 44). This attribution style may provide an explanation for the relationship that more neurotic workers tend to exhibit more CWBs. Individuals high on Neuroticism may be more inclined to focus on the negative aspects of their work environment and disregard the positive which tends to leads to more negative behavior in the workplace (Cullen & Sackett, 2003). Individuals who are high on Neuroticism are also predisposed to react more dysfunctionally to stressors (Spielberger, Gorsuch, & Lushene, 1970). Flaherty and Moss (2007) found that among workers low in Neuroticism, their perception of the degree to which other workgroups receive fair treatment reduced their own likelihood of CWBs. In contrast, among workers higher in Neuroticism, the perception that other workers were receiving fair treatment increased their tendency to exhibit CWBs (Flaherty & Moss, 2007).

White Collar Crime

Alalehto (2003) conducted interviews with businessmen in which about half of the businessmen were asked to report on the behavior of a legitimate businessmen (N = 69) and the other half were asked to report on the behavior of an economic offender (N = 55). In this context, economic crime was another term for white collar crime in that economic crime had a financial motive and occurred within an organizational setting by an employee of that organization. Alalehto found that the economic criminals were more likely to be described as neurotic.

Agreeableness

Agreeableness is a tendency to be cooperative, helpful, easy to get along with, and compassionate. Individuals who are low on agreeableness tend to be suspicious, unfriendly, uncooperative, and not concerned with the feelings of others.

Counterproductive Work Behavior (CWB)

Sackett and Devore (2001) reported a low average relationship (r = .08) between CWB and Agreeableness across 13 studies of that relationship. This result is interpreted as less Agreeable workers tend to exhibit slightly higher levels of CWB. Cullen and Sackett (2003) argue that the subjective norm component of behavioral intentions will be weakened for individuals low on the compliance facet of Agreeableness (tendency to conform) and these individuals will be more likely to engage in CWBs. Flaherty and Moss (2007) showed that among less agreeable workers, their perception of distributive justice (the fairness of received outcomes across workers) had the effect of reducing their tendency toward CWB.

White Collar Crime

Collins and Schmidt (1993) found that individuals who were serving time in prison for committing white collar crime also had a greater tendency than non-offenders to be suspicious, judgmental toward others, and believe they could not trust others in both the validation (r = .42) and cross-validation samples (r = .33). Alalehto (2003) found from interviews about the behaviors of economic criminals and legitimate businessmen that those who committed economic crime were more likely to be described as disagreeable (e.g., bitter, aggressive, has contempt for coworkers).

Impulsivity

Impulsivity is the tendency to be spontaneous and to make decisions quickly with little regard to the consequences. There are four facets of impulsivity: (lack of) premeditation, urgency, sensation-seeking, and (lack of) perseverance (Lynam & Miller, 2004). Whiteside and Lynam (2001) found the following relationships between impulsivity facets and Big Five facets: the (lack of) premeditation facet of impulsivity was related to the deliberation facet of conscientiousness; urgency facet of impulsivity was related to the impulsiveness facet of neuroticism; sensation-seeking facet of impulsivity was related to the excitement-seeking facet of extraversion; and (lack of) perseverance facet of impulsivity was related to the self-discipline facet of conscientiousness. From these rational analyses it is clear that Impulsivity is a complex behavioral tendency that shares meaning with three other basic personality attributes, low Conscientiousness, high Neuroticism, and high Extraversion.

Counterproductive Work Behavior (CWB)

Very little research investigated the link between CWB and Impulsivity. And no research demonstrated a direct relationship between Impulsivity and CWB. However, Cullen and Sackett (2003) argued that Impulsivity as a facet of Neuroticism moderates the relationships between CWBs and workers' cognitive, affective, and emotional reactions to workplace events and people. The general model of CWB proposes that CWBs are responses to workers evaluation of events and people in their workplace (Cullen & Sackett, 2003). Negative and emotional responses tend to increase the likelihood of CWBs. This relationship increases to the extent workers are high in Impulsivity. High levels of Impulsivity reflect lower levels of self-regulation, which tends to decrease the role of self-regulation in governing normative behavior.

White Collar Crime

While considerable evidence has demonstrated the central role of Impulsivity and Self-Control in criminal behavior, no research was located that investigated the specific relationship between Impulsivity and white collar crime. The companion White Paper on Criminal Behavior Guidelines, reports this literature on criminality in detail.

Locus of Control

Locus of control is one's belief about who has control over reinforcement. Individuals with an external locus of control believe other people or outside forces control what happens to them. Individuals with an internal locus of control believe they control reinforcement.

Counterproductive Work Behavior (CWB)

In an examination of Locus of Control as a predictor of employee termination for assaulting patients in a residential treatment facility (an extreme form of CWB), Perlow and Latham (1993) found that external Locus of Control predicted the likelihood of termination. Similarly, Fox and Spector (1999) used the work-specific Work Locus of Control Scale (Spector, 1988) to measure Locus of Control and found external Locus of Control was related to both organizational (r = .32) and interpersonal (r = .19) CWB. Martinko et al. (2002) also demonstrated that workers with an external Locus of Control were more likely to engage in counterproductive behaviors. External Locus of Control increases the likelihood that frustrating, negative or challenging events in the workplace will lead to more emotional and more impulsive responses to those events.

Research has also investigated a possible moderating role for Locus of Control. Storms and Spector (1987) found that the relationship between perceived frustration and sabotage (e.g., damage equipment or property of the organization on purpose) changed depending on whether individuals had an external or internal Locus of Control. Behavioral reactions for individuals with an internal locus of control were not affected by frustration, but individuals with an external locus of control were likely to respond to frustration with emotional, impulsive counterproductive behavior. (As a cautionary note, Spector and Fox (1999) were unable to replicate this moderator effect.) They also found a significant but moderately small correlation between Work Locus of Control and overall CWB (r = .16).

White Collar Crime

Terpstra, Rozell, and Robinson (1993) investigated the relationships between personality traits and decisions about insider trading, a form of white collar crime. Locus of Control was related to insider trading such that individuals with an external Locus of Control were more likely to engage in insider trading than individuals with an internal Locus of Control. Feeley (2006) reviewed the research on the individual- and organizational-level predictors of white collar crime and concluded that external Locus of Control predicts subsequent white collar crime (Terpstra, 1993; Trevino, 1986). These studies show the consistent pattern that individuals with an external Locus of Control were more likely to commit white collar crime compared to individuals with an internal locus of control. The most likely explanation for this consistent effect is that external Locus of Control is associated with lower Self-Esteem and higher susceptibility to outside influences.

Self-Control

Self-Control is the ability and tendency to regulate one's behavior based on normative influences as well as a consideration of the consequences of one's behavior. Low Self-Control manifests itself as a tendency to engage in behaviors providing immediate satisfaction without regard for long-term consequences.

Counterproductive Work Behavior (CWB)

The research on CWB largely takes place within the scientific discipline of industrial-organizational psychology. The vast majority of research within that discipline that focuses on personality factors underlying CWD uses "Big 5" oriented personality assessment tools, which do *not* include a Self-Control factor in their model of personality. For example, in Sackett and Devore's (2001) extensive review of studies of personality and CWB in the I-O psychology domain, no personality attribute was described as Self-Control. For this reason, there is little research that specifically evaluates the relationship between measures of Self-Control and CWBs. (This stands in stark contrast to the research in the criminal behavior domain in which a large number of studies have addressed the relationship between Self-Control and criminality.) However, Robinson and Greenberg (2003) have proposed a rational argument based on criminal behavior research that Self-Control is related to CWB. Robinson and Greenberg's rationale is based on two sets of findings. First research on criminal behavior has conclusively demonstrated that low Self-Control is perhaps the most important antecedent of criminal behavior. (See Gottfredson & Hirschi, (1990) for a thorough review.) Also, Gibbs (1991) has shown that low Self-Control is associated with stunted moral development. Similarly, Bordia, Restubog, & Tang, (2008) demonstrated that Self-control predicts interpersonal and organizational deviance. Both sets of results suggest that low Self-Control is associated with a reduced importance for social norms and a reduced interest in or ability to anticipate future consequences of one's actions. Robinson and Greenberg (2003) argue that these factors will lead to an increased rate of CWBs when low Self-Control individuals are in a work context and see opportunities for immediate gain or gratification or are responding the emotional, negative events.

White Collar Crime

Feeley (2006) observed that corporate criminals tend to be positive extroverts and that positive extroversion is associated with low Self-Control (Collins & Griffin, 1998). Alalehto (2003) describes positive extroverts are talkative, spontaneous, alert, manipulative, and egocentric. Spontaneity is characteristic of individuals who have low Self-Control. While this is not direct evidence of a relationship between Self-Control and white collar crime, it does provide an explanation for expecting the general relationship between Self-Control and criminality to extent to white collar crime.

Zahra, Priem, and Rasheed (2007) provide empirical support for a model in which individual characteristics including Self-Control moderate the relationship between precipitating factors such as industry circumstances and organization-level pressures and subsequent decisions to engage in corporate fraud. They demonstrate that low Self-Control is related in this moderator fashion to corporate fraud behavior. They note that individuals with low Self-Control are more likely to be risk-takers and less likely to delay gratification, which make these individuals a greater risk for committing fraud.

Risk-Taking

Risk-taking is the tendency to take chances, be daring, and seek excitement.

Counterproductive Work Behavior (CWB)

No Level 3 evidence was found that investigated the relationship between Risk-Taking and CWB.

White Collar Crime

In their quasi-experimental investigation of the personality characteristics of white collar criminals, Collins and Schmidt (1993) found that white collar criminals has substantially lower Socialization scores on the CPI than did non-offenders in both the validation and cross-validation samples (d = 1.00 and d = 1.02, respectively). They interpreted low Socialization scores on the CPI as indicating elevated levels of Risk-Taking. No other Level 3 evidence about the relationship between Risk-Taking and CWB was located.

Trait Competitiveness

Trait competitiveness is the desire to compete against others and win.

Counterproductive Work Behavior (CWB)

No Level 3 evidence was found that investigated the relationship between Trait-Competitiveness and CWB.

White Collar Crime

Research has found that highly competitive individuals are more likely to engage in white collar crime (Alalehto, 2003; Feeley, 2006; Terpstra et al., 1993). Terpstra et al. (1993) found that interpersonal competitiveness was related to insider trading, a type of white collar crime. They found that the students who were more competitive were more likely to engage in insider trading than the students who were less competitive. Alalehto (2003) also found from interviews describing the behaviors of economic criminals and legitimate businessmen that economic criminals were more likely to be described as competitive individuals. Feeley (2006) summarized the research on personality and white collar crime by concluding that hating to lose, trying to win at all costs, attracted to status symbols and wanting to be high-ranking members of their organizations are characteristics of competitive individuals (Terpstra, 1993) who have engaged in corporate criminal activity.

Stress

Stress is related to both the Financial Considerations guideline behavior and security violation behavior. Research has shown that individuals with financial problems experience stress (Heuer, 1991; Kim & Garman, 2003; Kim, Sorhaindo, & Garman, 2004, 2006; Norvilitis et al., 2006). Heuer (1991) provided background information on financial issues and reported that stress is related to financial problems in two different ways. Individuals may create financial problems and stress due to their own behaviors (i.e., compulsive gambling, compulsive shopping, alcohol abuse, or drug use). It may also be the case where individuals are stressed about their financial problems and turn to coping behaviors such as alcohol or drug use that may only exacerbate current problems or create new problems. He noted that individuals who are stressed over their financial problems may look to generate income through illegal means (i.e., embezzlement, forgery/counterfeiting, fraud, espionage).

Norvilitis et al. (2006) found that higher levels of credit-card debt were related to higher levels of stress in a sample of college students. They also found that higher levels of credit card debt were also related to students' decreased financial well-being (perceptions of financial health). Financial problems may create a situation in which individuals are more susceptible to be coerced / induced / recruited or make poor choices to get money to resolve their financial problems.

Kim and Garman (2003) investigated the psychological responses to and consequences of financial stress. They found that individuals with higher levels of financial stress were less committed to the organization and were more likely to be absent from work. Kim et al. (2004) assessed how credit counseling consumers' financial stress was related to their work outcomes (N = 2,372). They found that employees with higher degrees of financial stress and lower financial satisfaction were more likely to experience conflict and be absent (spend work time on personal finances and have more days where there is a reduction normal activities). In a similar study of consumers who sought credit counseling, Kim et al. (2006) found that a large majority of their participants (87.9%) perceived experiencing overwhelming, severe, or moderate stress related to their finances. These consumers had an average income of $24,430, an average total unsecured debt of $14,897, and an average debt load percentage (larger ratios mean a worse financial situation) of 20.23%. Kim et al. (2006) also found that individuals with higher levels of financial stress were more likely to be absent from work. Debt load percentage negatively predicted work time used for personal finances, which was one of the measures of absenteeism (Kim et al., 2006). They concluded that individuals will experience more stress as levels of debt increase.

Summary of Key Findings from Levels 1, 2, and 3 Evidence

Several key findings emerged from the review of Level 1, 2 and 3 evidence about financial antecedents of security violations or analogs to security violations.

1. Non-experimental Levels 1 and 2 evidence has demonstrated that espionage cases are commonly associated with financial problems, although decreasingly so in the past two decades with the increase in ideologically driven espionage.
2. Financial problems also have been demonstrated to be antecedents of counterproductive work behavior and white collar crime, which serve as analogs to security violation behavior.
3. A common core of psychological attributes have been found to underlie the tendency to engage in problematic financial behavior and counterproductive work behavior and white collar crime. This core of attributes includes

   a. Conscientiousness, especially facets relating to low dependability, low achievement striving, low responsibility and low socialization, is often the strongest antecedent of counterproductive behavior among the personality traits.
   b. Neuroticism (Emotional Instability) can be an antecedent of counterproductive behavior and white collar crime by weakening individuals' resistance to effects of stress and by leading people to interpret situations as threatening and to engage in more hostile attributions. Compulsive gambling is also linked to neuroticism.
   c. Agreeableness has been shown to have a negative effect on counterproductive behavior and white collar crime.
   d. External Locus of Control is related to white collar crime and counterproductive work behavior possibly by increasing one's susceptibility to outside influences.

4. Stress is likely to be an important consideration in the relationship between financial problems and security violations, counterproductive behavior and white collar crime. The roles stress can play are complex. Stress is often a result of financial problems and it may also decrease one's psychological resistance to maladaptive behavior such as substance abuse and other risky behavior. High levels of finance-related stress can also lead to disengagement from one's employment organization leading to less involvement with work activities and less commitment to the organization. This loss of resistance and disengagement from one organization may create a psychological context in which previously unlikely behavior becomes more likely. While no prediction evidence was located linking stress to security violations, there is a plausible theoretical rationale by which stress due to financial circumstances may lead to less loyal workplace decisions.

Overall, a wide range of evidence provides support for the Adjudicative Guidelines assumptions that financial problems create risk for future security violations. This linkage is grounded, in part, on the evidence that both sets of behavior are a function of a common set of dysfunctional psychological attributes.

MITIGATOR EVIDENCE

There are conditions that may reduce the importance of Guideline F issues. The mitigators for the Financial Considerations guideline revolve around affluence, debt, and compulsive gambling. It may also be informative to know the current state of US consumers on some of the relevant financial issues, such as debt and bankruptcy.

US Consumer Finances

US consumers are struggling financially. Consumer debt is on the rise (Bucks, Kennickell, & Moore, 2006; Weller, 2008) as is the number of consumer bankruptcies (American Bankruptcy Institute, 2009). The total consumer credit outstanding as of August 2009 was almost $2.5 trillion (Federal Reserve Board, 2009). Household debt relative to personal disposable income has steadily risen since 1952 (Weller, 2008). In the fourth quarter of 2007, the average American household debt was 133.7% of disposable income (Weller, 2008). Consumers accounted for 96% of bankruptcy filings in 2008 and consumer bankruptcy filings were up from 822,590 in 2007 to 1,074,225 in 2008 (American Bankruptcy Institute, 2009). Lyons, White, and Howard (2008) found that 39.1% of bankruptcy counseling participants and 40.3% of bankruptcy education participants were seeking help due to excessive use of credit or spending. The majority of the bankruptcy counseling and bankruptcy education participants had incomes of $40,000 or less (72% and 79.6%, respectively; Lyons et al., 2008).

Bucks et al. (2006) found that consumer debt increased from 2001 to 2004 with real estate debt accounting for most of that increase. In 2001, the median value of total debt for families was $77,200, including mortgages as debt (Bucks et al., 2006). By 2004, the median value of total debt for families was $103,400 (Bucks et al., 2006). During this time period, consumers also allocated a larger portion of their income toward their debt. Bucks et al. found that the proportion of families with debt whose payments exceeded 40% of their income rose 0.4% to 12.2% in 2004. There was a significant increase in the families who were late by 60 or more days in their payments during the previous year (Bucks et al., 2006). The proportion of families with debt whose payments were late by 60 or more days rose to 8.9% in 2004 (increase of 1.9% from 2001). These trends in debt disproportionately affected the bottom 80% of the income distribution. For the families with credit card debt, the median debt rose 10% to $2,200 and the mean debt rose 15.9% to $5,100 (Bucks et al., 2006).

Hilbert, Hogarth, and Beverly (2003) reported results from two different surveys of financial behavior, the University of Michigan's Survey of Consumers and the Survey of Consumer Finances. In particular, these surveys addressed the relationship between financial knowledge and financial behavior. Financial knowledge was based on cash-flow management, credit management, saving, and investment. From the Survey of Consumers, 12% of consumers do not pay all of their bills on time and 39% of consumers do not pay their credit card balances in full each month (Hilbert et al., 2003). The Survey of Consumers found that 11% of consumers save none of their income while the Survey of Consumer Finances found that 21% of consumers save none of their income (Hilbert et al., 2003). Regarding credit management, the Survey of Consumer Finances found that 11% of the consumers had dept-payment-to-income ratios greater than 40% and this percentage was higher for lower income families (Hilbert et al., 2003).

Debt

Under some circumstances, individuals with previous or current debt are thought to be less of a risk for later security violation behavior. The five mitigators for debt as a financial issue listed in the Adjudicative Guidelines (2005) are: age/frequency of previous financial problems, causes of financial problems were beyond individual control, financial problems are being resolved / under control, good-faith efforts to resolve financial problems, and disputed financial problems. Research has investigated four of these five mitigators.

Age / Frequency of Previous Financial Problems

Individuals are thought to be more reliable, trustworthy, and have good judgment when previous financial problems occurred a long time ago, were infrequent, or the circumstances around those problems are unlikely to recur. For example, the Adjudicative Guidelines (2005) prescribes age of the circumstances as a mitigator such that individuals who have a record of financially irresponsible when they were younger followed by cessation of the irresponsible activity may be regarded as a low risk for repeated financial problems. There are mixed results for the use of age as a mitigator for Guideline F. Kim et al. (2006) found that age was related to absenteeism, a form of counterproductive work behavior. Younger workers were more likely to be absent than were older participants. The average age of the participants was about 39 years. The findings of Kim et al. lend some support to age as a mitigator because they confirm a general trend that early levels of irresponsible behavior typically lessen over time.

Norvilitis et al. (2006) on the other hand, found that age was a significant predictor of credit-card debt in college students such that the older students had more debt than the younger students. They argued that the older students had more debt because they have had more time to use their credit cards. The college students ranged in age from 18 to older than 26 (the upper range in age was not given) and about 78% of the sample was between 20 and 23 years old. The findings of Norvilitis et al. indirectly suggest that one's financial circumstances change with age, often with an increasing demand for greater debt. Changing financial circumstances over time suggest that time since last misbehavior should not mitigate risk unless an evaluation of present financial circumstances also implies low risk. This point about changing financial circumstances is underscored by the results of Lyons et al. (2008) about bankruptcy rates. Lyons et al. (2008) conducted a study on the relative effectiveness of bankruptcy counseling and bankruptcy education. The bankruptcy education participants had actually filed for bankruptcy whereas the counseling participants had not filed for bankruptcy. Of the 4,310 bankruptcy counseling participants, 5.3% were less than 26 years old, 21.9% were between the ages of 26 and 35, 29.6% between 36 and 45, 23.9% between 46 and 55, 12.9% between 56 and 65, and 6.4% were older than 65. Of the 2,713 bankruptcy education participants, 5.2% were less than 26 years old, 19.9% were between the ages of 26 and 35, 22.9% between 36 and 45, 24.5% between 46 and 55, 14.9% between 56 and 65, and 12.6% were older than 65. Most of the participants in both samples were of middle age, presumably because individuals in middle age groups may be more likely to be homeowners or to have other sources of indebtedness than the youngest age group.

Causes of Financial Problems Were Beyond Individual Control

Another mitigating circumstance occurs when an individual has financial problems that are mostly beyond their control, such as an unexpected medical emergency, loss of employment, a business downturn, or a death, divorce, or separation, and they act responsibly. Lyons et al. (2008) found that the most common reasons for seeking bankruptcy counseling or bankruptcy education were for financial problems mostly beyond the participants' control. The reasons given for seeking bankruptcy counseling or education, respectively, were: loss of employment (53.5% and 54.3%), health problems or medical expenses (50.7% and 42.9%), divorce or separation (16.8% and 23.2%), business loss or excessive business expenses (14.3% and 10.2%), and death of spouse or loved one (12.9% and 12.2%). The implication is that causes of financial problems outside one's control are frequent and severe. They may be common sources of stress and may create a need for additional income. While financial problems driven by external factors may not be indicators of dysfunctional personality attributes, they nevertheless dispose people to suffer risky consequences and financial difficulties. Because externally driven financial problems are not uncommon, the weight attached to them in the adjudication process presumably should consider whether the person disregarded the possibility of such external events or gave reasonable consideration to them.

Financial Issues Are Being Resolved / Under Control

Individuals who are taking steps to resolve or take control of their problems, such as having received or are currently receiving counseling, are also thought to pose less of a risk. There is some research that has studied the effectiveness of counseling for financial problems (Elliehausen, Lundquist, & Staten, 2007; Loibl, Hira, & Rupured, 2006; Lyons et al., 2008). Lyons et al. found that 19% of their bankruptcy counseling sample had previously received credit counseling to help resolve their financial problems. Loibl et al. (2006) compared first-time and repeat bankruptcy filers on the factors that may influence the likelihood of completing a chapter 13 debt payment plan. Loibl et al. found that repeat filers composed 34% of their sample. Repeat filers were no more knowledgeable about finances than were first-time filers, but they intended to engage in a wider range of financial behaviors to get themselves on track financially (i.e., track spending, pay bills on time, reduce spending, write a spending plan, and talk with family about expenses).

Elliehausen et al. (2007) investigated what effect credit counseling might have on subsequent consumer behavior by comparing a sample of consumers in credit counseling with a sample of consumers with a similar credit and demographic profile who did not seek credit counseling. In general, they found that the consumers who sought counseling had improved financial profiles and behaviors (determined by data from consumer credit reports) three years later and the improvements were more pronounced for the lower quintiles of consumer Empirica scores (similar to the FICO risk score that is specific to TransUnion where higher scores are better).

The implication of these studies is that successfully completed bankruptcy counseling and debt/credit counseling both appear to effectively reduce to a substantial degree the likelihood of recidivism.

Good-Faith Effort to Resolve Financial Problems

Individuals who have started to resolve their financial problems, such as making payments to creditors, are thought to pose less of a risk. These individuals may be demonstrating good judgment by taking action to resolve their problems. In their study on bankruptcy counseling and bankruptcy education, Lyons et al. (2008) found that participants intended to engage in more responsible financial behaviors in the future. Of the bankruptcy counseling participants, 95.4% were willing to reduce their expenses, 76.9% to increase their income, and 63.8% to change their lifestyle. The bankruptcy counseling participants were also planning to make changes to get out of debt, such as looking for a second job or working more hours, avoid impulse shopping, pay bills on time, pay with cash to avoid using credit cards, repay debts, and track income and expenses.

Loibl et al. (2006) found that all of the bankruptcy filers (first-time and repeat) were intending to engage in all seven of the positive financial practices (track spending, pay bills on time, reduce expenses, start emergency fund, write spending plan, talk with family about finances, and organize financial records). Repeat filers were more likely to engage in three of the positive financial behaviors (start an emergency fund, to reduce spending, and to write a spending plan).

Overall, these studies about intention regarding future financial behavior are not well enough designed to provide any clear indication about the amount of mitigation weight that should be placed on positive intentions. This observation only applies to research about intentions. No research was located about the predictive value of repayment strategies that were actually implemented.

Disputed Financial Problems

The last mitigator concerns instances where individuals can legitimately dispute their past-due debt as the cause of their financial problems and have documentation to support their dispute or have taken steps to resolve the problem. There is no empirical or conceptual research to support or refute this situation. Presumably, the mitigation weight to be given to such disputes is a legal or procedural matter, not a matter of social science.

Gambling (Compulsive)

Under some circumstances, individuals with previous or current gambling problems are thought to be less of a risk for later security violation behavior. The Adjudicators Desk Reference (2005) extends the meaning of the Adjudicative Guidelines' (2005) treatment of mitigators to the specific circumstances surrounding compulsive gambling. The two mitigators for compulsive gambling as a financial issue listed in are: age of previous gambling problems and gambling problems are being resolved / under control. Research has investigated both mitigators as well as the prevalence of gambling problems.

Prevalence of Gambling Problems

Pathological gambling is considered an impulse disorder affecting 2.5 million - 5 million people in the US (Ledgerwood & Petry, 2006). Pathological gamblers experience financial, employment, legal, psychological, familial, and public health consequences from their gambling (Petry & Armentano, 1999). Heuer (1992) reported that compulsive gamblers will continue to gamble despite the problems that gambling has caused (e.g., financial, family, or work). Heuer also reported that compulsive gamblers bet larger sums of money than non-compulsive gamblers. Lyons et al. (2008) found that 5% of the bankruptcy counseling participants and 6.3% of the bankruptcy education participants were seeking financial help due to spending related to addiction (i.e., gambling, drugs, etc.). Previous research has found that as many as 60% of pathological gamblers commit illegal acts to support gambling (Lesieur & Anderson, 1995, as cited in Petry & Armentano, 1999; Rosenthal & Lorenz, 1992; Thompson et al., 1996). Burge, Pietrzak, and Petry (2006) found that while the differences were not significant, early-onset gamblers had more gambling debt ($25,755 vs. $12,424) and gambled more in the past month ($3,222 vs. $2,432) than later-onset gamblers.

Previous Gambling Problems

Individuals are thought to be more reliable, trustworthy, and have good judgment when previous gambling problems that have since ceased occurred a long time ago, were infrequent, or the circumstances around those problems are unlikely to recur. While this mitigation condition is not exactly the same as age of onset, it tends to be related to age of onset since longer periods of cessation are possible with younger age of onset. Burge et al. (2006) compared the outcomes of early- and later-onset gamblers seeking treatment. They defined early-onset as beginning gambling between the ages of five and 14 (N = 72) and later-onset as beginning gambling at age 15 or older (N = 164). Early-onset gamblers were also more likely to have sought help for their gambling previously compared to later-onset gamblers (58.3% vs. 44.5%).

Petry (2002) conducted a study of demographic differences among treatment seeking gamblers. The participants were classified into one of three age groups: young (18 to 35; N = 97), middle-aged (36 to 55; N = 197), and older adults (56 and older; N = 49). In general, the age groups had different onset and intensity of gambling problems as well as different difficulties related to gambling. Petry found that the middle-aged group had the most severe gambling problems in the past month and gambled the most frequently during the past month compared to the younger and older age groups. Men had more problems with lifetime gambling compared to women. On average, women entered into treatment sooner after the onset of a gambling problem (4-5 years vs. 11 years for men). Older gamblers did gamble the largest percentage of their income over the past month, but older women gambled the largest percentage of their income overall (in excess of 200% of their income) and gambled the most amount of money. Older adults had the largest current gambling debt ($25,000 for men and $12,000 for women), but the difference between age groups or gender was not significant. Older adults also had the most employment problems and middle-aged adults the least over the past month.

The implication of these results is that age of gambling onset has unclear implications for risk.

Gambling Problems Are Being Resolved / Under Control

Individuals who are taking steps to resolve or take control of their problems, such as having received or are currently receiving treatment for compulsive gambling, are also thought to pose less of a risk. The literature search identified research about the effectiveness of treatment for compulsive gambling problems (Ledgerwood & Petry, 2006; Petry, 2003; Petry & Armentano, 1999; Weinstock, Ledgerwood, & Petry, 2007).

Petry and Armentano (1999) reviewed the research on the effectiveness of various treatment options for pathological gambling. They concluded that Gamblers Anonymous (GA) is the most popular of the treatment options. GA may help some gamblers to abstain from gambling but GA seems to help a minority of people as only 8% of pathological gamblers abstain for a year or more (Brown, 1985, as cited in Petry & Armentano, 1999). Petry and Armentano concluded that cognitive behavioral treatments seem to be the most effective treatment option, but more research is needed on the effectiveness of various treatment options.

Petry (2003) compared the outcomes of gamblers who were seeking treatment based on whether or not they attended GA meetings. Petry found that GA attendees had more gambling debt than did the non-GA attendees. GA attendees also had less employment, alcohol, and drug problems, but they had more psychiatric and family/social problems than did non-GA attendees. GA attendees were more likely to attend GA meetings and more likely to be abstinent from gambling in the two months after beginning professional treatment.

Ledgerwood and Petry (2006) reviewed the available research on relapse in pathological gambling. Hodgins and el-Guebaly (2004, as cited in Ledgerwood & Petry, 2006) found that only 8% of their sample was completely abstinent from gambling over the course of a year. Some of the more frequent reasons given for relapse included a need to make money (17%), coping with negative emotions (11%), and excitement seeking (7%). Ledgerwood and Petry concluded that stressful events, such as employment or family problems, can precipitate a relapse in pathological gamblers.

From these studies, a broad conclusion is that post-treatment abstinence of more than 1 year is an unusually successful result achieved by only 1 in 10 treated gamblers. While treatment program may have some impact favoring cognitive behavioral methods over Gambling Anonymous methods, conclusive results are not available.

Weinstock, Ledgerwood, and Petry (2007) set out to develop a set of empirically based guidelines when the goal of treatment is moderation gambling instead of abstinence. Petry and Armentano (1999) also reported that a reduction in gambling may be a viable treatment goal rather than abstinence. Moderation gambling is "gambling at an intensity that does not cause harm to the individual or others, such as family and friends" (Weinstock et al., 2007, p. 185). Problem-free gamblers (N = 45) had scores of zero on the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) and symptomatic gamblers (N = 133) had scores of one or greater on the SOGS. Weinstock et al. reported that the problem-free gambling group gambled less frequently, spent less time gambling, and spent a smaller proportion of their income (3.9% of income for problem-free vs. 73.9% of income for symptomatic) gambling than did the symptomatic group. Of the problem-free gamblers, 30 were abstinent half-way though the study (six months before the 12-month assessment) compared to two gamblers who were abstinent during this time period from the symptomatic group. Weinstock et al. concluded that money was an important indicator of gambling intensity and harm. Gambling less than once per month, for no more than 1.5 hours per month and spending less than 1.9% of monthly income was associated little-to-no harm among pathological gamblers. They concluded that only a small group of pathological gamblers were able to continue harmless levels of gambling after treatment. Although no evidence is conclusive, gambling moderation does not appear to be an effective alternative to gambling abstinence for treatment of pathological gamblers.

SUMMARY OF KEY FINDINGS RELATING TO MITIGATORS

Literature was reviewed relating to the use of mitigators having to do with affluence, debt and compulsive gambling. Overall, the social science evidence does not provide much further clarification about the manner in which information about affluence, debt and gambling should increase or decrease the weight attached to the individual's problematic financial circumstances.

Perhaps the most fundamental recent shift in financial circumstances is the increased indebtedness of the American consumer. Young adults are more likely to have far greater education debt than a generation ago. Mortgage lending practices have encouraged higher levels of home debt. Credit card practices have resulted in higher levels of credit debt. These accumulating trends suggest that previous standards for the amount of debt considered "too risky" may no longer be relevant. It's not that larger debt is any easier to manage – it's not – but that larger debt may not be as abnormal or unusual as before. For that reason, larger debt may not be as diagnostic of unusual or extraordinary "risk."

Certain specific information about the riskiness of debt was reviewed.

- Age at which significant indebtedness was incurred may not be as diagnostic of risk as before. Among those under 30, large debt may not be as indicative of poor judgment where it is a function of education debt as compared to credit card debt. Among those over 30, large mortgage debt may not be as indicative of poor judgment (or at least atypical judgment) as large credit card debt.
- Financial problems triggered by events outside the person's control are becoming more common. The more common uncontrolled triggers become, the less indicative they may be of lower risk.
- Bankruptcy counseling leads to a recidivism rate of 19%-34%. Most do not repeat. And financial behavior improves, on average, following counseling. The act of seeking financial counseling is associated with a willingness to change problematic financial behaviors.

Evidence about the riskiness of compulsive gambling is mixed.

- Treatment of compulsive gambling has some positive benefit but it may be small. Gamblers Anonymous yielded a 92% recidivism rate over 1 year where cognitive behavioral treatment may be somewhat more effective. But the evidence is not conclusive.
- Stress is likely to be a factor in relapsing into gambling given that the two most common reasons for relapse are the need to make money and coping with negative emotions.

- Current research is evaluating the effectiveness of gambling treatment with the goal of moderation rather than abstinence. More research is needed to confirm the mitigation value of moderate gambling within a treatment regimen after a period of compulsive gambling. The early indications are that a treatment goal of harmlessly moderate levels of gambling is achieved by few pathological gamblers.

No empirical information was available about the riskiness of unexplained affluence. Indeed, the mitigation value of unexplained affluence appears not be a social science question.

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