Social Networks 35 (2013) 686–698

Contents lists available at ScienceDirect

Social Networks

journal homepage: www.elsevier.com/locate/socnet

Investing in people: The role of social networks in the diffusion of a large-scale fraud

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ARTICLE INFO

Article history:
Received 31 March 2012
Received in revised form 21 April 2013
Accepted 24 June 2013

Keywords:
Diffusion theory
Fraud
Ponzi scheme
Opinion leaders
Change agents
Victims

ABSTRACT

This paper draws from social network analysis and diffusion theory to study the case of a mortgage fraud that spread undetected for five years in British Columbia, Canada. The fraud is studied from the point of view of 559 victims who unknowingly invested in the Ponzi scheme which defrauded 2285 investors for a total of $ 240 million dollars. Results show diffusion played a role in the success of the Eron fraud even though the fraud ended before it reached the final stages of a classic diffusion process. A closer look at the social structure of the Eron network revealed the elements that made the fraud successful: (1) change agents, particularly Eron principals and Eron employees invested their personal time and effort recruiting investors; (2) independent brokers actively spread the fraud to their clients; and (3) opinion leaders, investors themselves, unknowingly spread the fraud through their social networks by recruiting their friends and family to invest in Eron.

1. Introduction

The diffusion of innovations is most fittingly studied as phenomena deeply rooted in the structure of social networks (Valente, 1995). Social networks are especially relevant in the case of illegal innovations where legal, impersonal information channels are generally unavailable, and where uncertainty and risk are at their highest (Baker and Faulkner, 2003). Trusted relationships tend to reduce information asymmetry[1] by providing an avenue of information to buyers and investors; however, such relationships may also create opportunities for fraudulent behavior (Baker and Faulkner, 2004; Granovetter, 1985; Pack, 2002).

This paper draws from social network analysis and diffusion theory to study the case of Eron Mortgage Corporation (referred to hence forth as Eron), a fraud that spread undetected for five years in British Columbia Canada, defrauding 2285 investors out of $ 240 million dollars (details on the case can be found in Appendix A). Eron was a mortgage brokering business primarily in the market of selling syndicated mortgages in real estate development projects. Formal charges against Eron include: trading securities without being registered, not filing a prospectus on said securities, misrepresenting the intention to sell securities, and perpetrating a fraud (Eron Mortgage Corporation et al., 1999). This case is a classic example of a Ponzi scheme.[2]

The diffusion of fraud in our case is studied from the point of view of victims who invested in the fraudulent scheme. Illegal innovations are typically studied from the perspective of offenders adopting novel crime techniques (Bouchard, 2007; Tremblay, 1986; Tremblay et al., 2001; Mativat and Tremblay, 1997), not crime victims (Baker and Faulkner, 2003, 2004; Comet, 2011 being notable exceptions). The purpose of this paper is two-fold. First, we assess whether there is empirical evidence of diffusion in the spread of the Eron fraud. We set out to examine how the Eron fraud successfully diffused through a population of victims compared to a classic diffusion model typical of successful, legal innovations. Perceptibly risky investment opportunities may not spread as rapidly as would be expected by the typical *S*-shaped (logistic) diffusion curve. In one of the rare diffusion of fraud studies, Baker and Faulkner (2004) found evidence of linear spread, suggesting that contagion within the group of investors never really occurred. Instead, personal sell-

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[1] Information asymmetry occurs when market information tends to be on the side of the seller and is generally present in most market transactions.

[2] Ponzi schemes have three main components: (1) convincing a group of people that you have an innovative idea, (2) the promise of high returns, and (3) initial payments to early investors (Bhattacharya, 2003). The key to a successful Ponzi scheme is the continual influx of money from new investors needed to pay returns to existing investors. The first successful Ponzi scheme was carried out by Charles Ponzi in 1919 and much like Eron, Ponzi promised high returns for false investment opportunities and delivered to his initial investors. The scheme Ponzi built promised 50% returns on international mailing coupons using word-of-mouth to diffuse the fraud (Bhattacharya, 2003).

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http://dx.doi.org/10.1016/j.socnet.2013.06.005

ing and advertising were the main drivers (Baker and Faulkner, 2004: p. 108).

Second, we investigate in some detail the social structure of the Eron victim network. More specifically, we examine the nature of the relationship between victims and the individuals who influenced them to invest in order to determine the relative importance of: (1) sociometrically identified *opinion leaders*, who influenced their friends and family into investing in Eron; (2) industry professionals such as Eron principals and employees, financial brokers outside of Eron, and industry regulators acting as *change agents* in "selling" the investment opportunity; and (3) mass media channels in spreading the fraud. In doing so, we aim to shed light on the elements that made Eron successful. Like most legitimate innovations that do not catch on, criminal innovations typically remain small-scale, local in scope, and generally unspectacular. Those that find success are the exception, rather than the norm, and the Ponzi scheme organized by Eron may very well be an exception.

To the best of our knowledge, this study is the first to use social network analysis to study the diffusion of fraud through a victimization network. Previous research (Baker and Faulkner, 2003; Comet, 2011) alludes to the structure of fraud networks through indirect evidence,[3] but are unable to make definitive statements about the central actors and other structural characteristics of the victim network. By analyzing the fraud from a social network perspective, we show how the fraud diffused through short chains from multiple anchor points, including victims who unknowingly became agents of diffusion in their own victimization network.

2. Conceptual background

Rogers (2003) defines diffusion as "...the process by which an innovation is communicated through certain channels over time among members of a social system" (p. 11). An innovation is "...any idea, practice, or object perceived to be new by an individual or other potential source of adoption of the innovation" (Rogers, 2003: p. 12). Individuals learn about innovations through two general types of communication channels: (1) impersonal methods, where exposure and influence occurs through advertising and media-related channels broadly defined; and (2) social networks, where interpersonal relations play a key role in getting people to adopt an innovation. Mass media channels can reach a large audience and quickly spread information through a population. They are also adept at changing weakly held opinions and attitudes, and are especially useful in spreading information to early adopters at the beginning stages of the diffusion process (Rogers, 2003: pp. 204–205). Interpersonal channels include face-to-face interactions and offer a two-way information exchange among the individuals sending and receiving messages. Interpersonal channels have a greater power of persuasion than mass media in changing attitudes and beliefs, and thus, are more important at the later stages of diffusion when dealing with late adopters or laggards[4] (Rogers, 2003: p. 205).

The two step flow of communication, one of the earliest models of the diffusion of innovations (Katz and Lazarsfel, 1955), treats these two sources as occurring sequentially. Opinion leaders, the most influential individuals and usually the first to adopt, learn about innovations through mass media channels and transfer their knowledge to the rest of the population through personal influence. Empirical research has since shown that this may not always be the case, especially as individuals became increasingly exposed to, and influenced directly by, the media (Rogers, 2003). Adopters may be convinced either by media or a trusted personal contact, or may need both media and interpersonal relations before being convinced to adopt. As we will explain below, Eron victims reported being influenced by each of these three possibilities.

Successful diffusion typically involves the presence of (1) change agents—professionals "outside" the social system who influence clients' innovation-decisions in a desirable direction within the system, usually sellers of an innovation (Rogers, 2003: p. 366), and (2) opinion leaders—those individuals who are the most influential in a community of potential adopters (Burt, 1999; Valente and Davis, 1999; Rogers, 2003). While they are the most influential members in a community of potential adopters; however, they may not always be the first to adopt an innovation (Burt, 1999; Valente and Davis, 1999; Rogers, 2003; Kadushin, 2012). Change agents act as brokers between the creators of the innovation and the potential adopters to communicate information about the product and accelerate its diffusion (Rogers, 2003). Change agents differ from opinion leaders in that the latter are part of the social system of adopters, while the former are technically outsiders seeking to mobilize adoption. The success of change agents in diffusing an innovation depends on two factors: (1) the level of effort they invest in convincing others to adopt the new innovation, and (2) successfully identifying opinion leaders to continue the influx of new adopters through word of mouth in their own social networks (Rogers, 2003).

Opinion leaders help spread the word about an innovation, have greater influence on adoption than other actors even if they are not the most centrally connected actors, and the intentional use of those opinion leaders as a diffusion mechanism helps accelerate rates of adoption (Rogers, 2003; Valente and Davis, 1999). These individuals are crucial to investment decisions, whether legitimate or not. For example, Shiller and Pound (1989) found that when buying stock, individuals are highly influenced by the purchases of trusted friends. In the special case of a Ponzi scheme like Eron or others (Baker and Faulkner, 2003), those opinion leaders are in fact victims of the fraud. They typically invest early then turn to friends and family to spread the word about the opportunity. Because of their unique position as adopter and persons of influence, they become "bridges" in the network, unknowingly helping to maintain the fraud.

In fact, the failure of Fountain Oil and Gas (a case study presented in Baker and Faulkner (2003, 2004)) was partially due to the relatively low numbers of such opinion leaders among investors. In other words, social contagion was minimal in that case, which prevented the scheme from catching on as would be expected if a diffusion effect had occurred. Baker and Faulkner (2003, 2004) studied diffusion in the context of an intermediate fraud—A fraud performed by a business after it had established a solid legitimate foundation for its activities. The authors, however, discovered that impersonal methods of diffusion (such as hearing about the investment through advertising, mailings, telemarketing, and cold calls) were just as important in spreading the fraud as personal methods. From interviews with investors, it was found that the principals tried to induce diffusion by acting as change agents, inciting victims to spread the word about the investment opportunity. When numbers declined, they relied on impersonal methods. This result emphasizes the fact that investors will not automatically spread the

[3] Both Baker and Faulkner (2003) and Comet (2011) use geographic concentration of investors and homophilous demographic traits to assess social structure.

[4] Together, diffusion research recognizes five types of adopter categories—innovators (opinion leaders), or those who start the diffusion process, early adopters, early majority, late majority, and laggards. Each is categorized based on their innovativeness which describes the degree to which an individual is likely to be an early adopter (Rogers, 2003: p. 22). Early adopters have been shown to be involved in trusted social relations, such as friends and family members with the opinion leaders who influenced them to adopt the innovation (Rogers, 2003; Valente, 1995; Nooy et al., 2005). Adopter categories also reveal demographic and socio-economic characteristics of adopters which play an important role in tie formation and an individual's social networks (McPherson et al., 2001).