

Hornuf, Lars; Schwienbacher, Armin

**Working Paper**

## Which Securities Regulation Promotes Crowdfunding?

Munich Discussion Paper, No. 2014-27

**Provided in Cooperation with:**

University of Munich, Department of Economics

*Suggested Citation:* Hornuf, Lars; Schwienbacher, Armin (2014) : Which Securities Regulation Promotes Crowdfunding?, Munich Discussion Paper, No. 2014-27, Ludwig-Maximilians-Universität München, Volkswirtschaftliche Fakultät, München, <https://doi.org/10.5282/ubm/epub.20975>

This Version is available at:

<https://hdl.handle.net/10419/104434>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



LUDWIG-  
MAXIMILIANS-  
UNIVERSITÄT  
MÜNCHEN

VOLKSWIRTSCHAFTLICHE FAKULTÄT



Lars Hornuf und Armin Schwienbacher:  
Which Securities Regulation Promotes  
Crowdfunding?

Munich Discussion Paper No. 2014-27

Department of Economics  
University of Munich

Volkswirtschaftliche Fakultät  
Ludwig-Maximilians-Universität München

Online at <http://epub.ub.uni-muenchen.de/20975/>

# WHICH SECURITIES REGULATION PROMOTES CROWDINVESTING?\*

**Lars Hornuf**

University of Munich, Germany

Visiting Research Fellow, Social Science Research Institute (SSRI),

Duke University, USA

**Armin Schwienbacher**

Univ. Lille Nord de France – SKEMA Business School, France

This Version: March 20, 2014

## ABSTRACT

In this paper, we show that too strong investor protection may harm small firms and, thus, entrepreneurial initiatives. This situation is particularly relevant in crowdinvesting, which refers to a recent financial innovation originating on the Internet. In general, securities regulation offers exemptions to prospectus and registration requirements. From an analysis of selected countries, we offer first evidence that portals shape the securities contracts they provide to startups based on these exemptions. This, in turn, can limit the amount of capital raised by the firms as well as the type of investors participating in the campaigns. Finally, we offer a ‘law and finance’ analysis of recent reforms of securities regulation in different countries that have been initiated as a means to encourage crowdinvesting.

Keywords: crowdinvesting, crowdfunding, securities regulation, investor protection

JEL Classification: G20, G18, G38, K22

---

\* Contact address of authors: Lars Hornuf, University of Munich, Faculty of Law, Ludwigstraße 29, D - 80539 Munich (Germany), Phone: +49 89 21 80 30 10, Email: lars.hornuf@jura.uni-muenchen.de; Armin Schwienbacher, Université Lille 2, Faculté de Finance, Banque, et Comptabilité, Rue de Mulhouse 2 - BP 381, F-59020 Lille Cédex (France), Phone: +33 3 20 90 75 34, Email: armin.schwienbacher@skema.edu.

## 1. INTRODUCTION

Securities regulation is a driving policy tool for ensuring strong investor protection and, thus, stock market development (La Porta, Lopez-de-Silanes, Shleifer and Vishny 1997, 1998; La Porta, Lopez-de-Silanes and Shleifer, 2006). Traditionally, stronger securities regulations emerged in response to financial crises, accounting scandals, corporate governance problems and financial innovations. For example, the United States (US) Congress adopted the Securities Act of 1933 and the Exchange Act of 1934 in response to the stock market crash of 1929 and the resulting Great Depression. These regulations were intended to mitigate the information asymmetries between securities issuers and investors, complementing former state-level legislation in place at the time. Similar actions were taken in other developed countries as a response to other financial crises. Moreover, many of the recent regulatory changes have been triggered by the most recent financial crisis of 2008.

More recently, fervent debate about reforming securities regulation has arisen from the emergence of crowdfinancing<sup>1</sup> (also referred to as investment-based crowdfunding<sup>2</sup>, securities crowdfunding<sup>3</sup> or equity crowdfunding<sup>4</sup>), which refers to a financial innovation in securities issuance that gives small entrepreneurs access to the general public. While transaction costs made it unlikely in the past that small amounts would be offered to the public, the Internet now provides opportunities to do so. Crowdfinancing has therefore become a viable alternative form of external finance for entrepreneurial firms. This paper aims to understand how securities regulation, particularly the exemptions to prospectus and registration requirements, affects the structure of crowdfinancing portals and fund-raising campaigns of firms as well as the type of investors participating in crowdfinancing portals.

---

<sup>1</sup> In this paper, we use the term ‘crowdfinancing’ (Klöhn and Hornuf, 2012; Hornuf and Schwienbacher, 2014) to refer to Internet-based investments in startup firms by a large number of natural persons (i.e., the ‘crowd’)—sometimes accompanied by co-investments of legal persons (e.g., angel investments or government grants)—with the intention to obtain the residual claim on the future cash flows of a firm. The investments offered can be in the form of equity shares, debt securities or mezzanine finance (e.g., profit participating loans).

<sup>2</sup> See the FCA Consultation Paper CP13/13 ‘The FCA’s regulatory approach to crowdfunding (and similar activities)’.

<sup>3</sup> See Knight, Leo and Ohmer (2012) and the SEC Proposed Rules.

<sup>4</sup> See, for example, the JOBS Act, including the term ‘crowdfunding’, which refers to transactions involving the offer or sale of a security, or Ahlers, Cumming, Günther and Schweizer (2013), who define the term ‘equity crowdfunding’ as an investment model in which investors receive ‘some form of equity or equity-like arrangements’.

Crowdfunding has challenged this regulation because it makes use of exemptions, as defined in the national regulation of prospectus and registration requirements, to offer securities to the general public (i.e., the crowd). This enables the raising of external finance in compliance with these regulations while avoiding incurring significant compliance costs.<sup>5</sup> In many countries, the amounts raised in crowdfunding campaigns fall under exemptions, most importantly with regards to the amount of the offer. For example, in the European Union (EU), firms do not need to comply with the prospectus requirement if the amount of the offer does not exceed €100,000 within a 12-month time interval.<sup>6</sup> Other exemptions refer to the maximum number of investors to whom the offer is made, the minimum contribution imposed on investors, the minimum denomination of the securities offered and whether the offer is made to ‘accredited’ or ‘qualified’ investors. In the US, a similar exemption with a threshold of up to \$1,000,000 will become effective with the implementation of the Jumpstart Our Business Startups (JOBS) Act.<sup>7</sup>

Securities legislation affects the level of investor protection, as more exemptions imply weaker investor protection. Research in traditional ‘law and finance’, such as that by La Porta et al. (1997, 1998), who focus on the impact of legal rules on stock markets and economic growth, considers measures of investor protection that mostly apply to large open and publicly traded corporations.<sup>8</sup> For large firms, exemptions are irrelevant. Our approach here is different, because we concentrate on smaller firms that are likely to benefit from available exemptions. Moreover, securities regulations differ across countries along the minimum size of the offer that requires compliance with registration requirements, as we evidence subsequently. Such differences enable

---

<sup>5</sup> The initial compliance costs of a typical IPO often exceed \$1,000,000 because issuers must conduct due diligence; hire legal counsel and an underwriter; and pay SEC filing fees, state securities filing fees, stock exchange or OTC registration fees, accounting fees and an increased D&O insurance premium (Bagley and Dauchy, 2003). For crowdfunding, costs are lower because offers are made by smaller, simpler startups, which also do not seek a public listing. Still, according to Darren Westlake, founder of the UK portal *Crowdcube*, costs for such prospectus approvals are in the range between £20,000 and £100,000 (Collins and Pierrakis, 2012).

<sup>6</sup> See Section 4.2.2.

<sup>7</sup> Pub. L. 112-06, 126 Stat. 306 (2012).

<sup>8</sup> For a taxonomy of ‘open’ or ‘public’ versus ‘closed’ or ‘private’, ‘listed’ or ‘publicly traded’ versus ‘unlisted’, and ‘closely held’ versus ‘widely held’ corporation, see Armour, Hansmann and Kraakman (2009). In what follows, we rely on the definitions provided there.

us to examine the impact of exemptions and, thus, investor protection for smaller issuances on crowdfunding.

In a first step, we present a theoretical framework based on small firms deciding whether to seek compliance for their crowdfunding campaign. We assume that registration and disclosure of a prospectus reduces agency costs in the firm but comes at compliance costs. Escaping registration within the permissible exemptions leads to less investor protection and, thus, to higher agency costs. This simple framework generates the following implications: [a] some firms may inefficiently raise less for their investments to comply with exemptions and [b] some small firms may not issue any securities in the absence of sufficient exemptions. These predictions are useful to understand how exemptions in securities regulation affect crowdfunding.

Our approach in modeling the tradeoff is consistent with the arguments made by Hazen (2012), who stresses that regulators need to strike a balance between tailoring securities law to match the financial needs of small firms and, at the same time, protecting investors to a reasonable extent. As Hazen (2012, p. 1744) states: *‘registering securities under the 1933 Act is an expensive and otherwise burdensome process that presents barriers to small businesses’ access to the U.S. capital markets. Encouraging small business formation and capitalization thus clashes with the regulatory investor protection thrust of the securities laws’*. Because greater investor protection adds greater costs and burden to firms, smaller firms may not be able to comply, thus discouraging entrepreneurial activities. In our study, we formalize the discussion by offering a theoretical framework that helps explain the effect both on firms’ incentives to rely on crowdfunding and on medium-sized firms that then must face tradeoffs in terms of whether to seek the same exemption or comply with disclosure and registration requirements as larger firms do.

In a second step, we examine how securities regulation differs across several European countries and the US. While focusing on exemptions to the prospectus and registration requirements, we discuss how investor protection varies in different countries and infer how crowdfunding portals adapt the structure of their securities contracts and their crowdfunding campaigns to these exemptions. We offer a detailed discussion on several countries, including the US, Italy, Austria, United

Kingdom (UK), France, and Germany, some of which have taken steps to reform their securities regulation to facilitate crowdfunding.

Finally, we collect unique data on crowdfunding practices in different European countries. Although data collection is limited because markets are still nascent, we offer first evidence on how crowdfunding markets are emerging and affected by current regulation. Consistent with our theoretical predictions, our empirical analysis indicates that firms raise inefficiently low amounts of money when the exemptions are restrictive. The case of the US is even more striking, because only very limited exemptions permit crowdfunding, making it practically illegal. Therefore, no crowdfunding has so far taken place in the US. Existing portals are limited to accredited investors, which suggests that exemptions affect crowdfunding.

Our analysis concludes that strong investor protection through fewer exemptions may hurt entrepreneurial initiatives that rely on security offers, because small firms are not able to support the costs related to compliance, in contrast with large firms for which stronger investor protection is beneficial. The negative impact on such entrepreneurial initiatives may be even stronger in countries in which other equity investors, such as business angels and venture capitalists, are absent, because these investors could offer alternatives to close the entrepreneurial funding gap. A notable parallel can be drawn with regard to labor protection and legal capital. Saxenian (2000) documents that an essential element promoting entrepreneurial activities and innovation in Silicon Valley is the poor level of labor protection in California. Weak labor protection makes it easier for entrepreneurs to hire and fire employees, while employees can easily leave the firm and work elsewhere or start their own firm. Another example is the minimum capital requirement for new firm incorporations. Braun, Eidenmüller, Engert and Hornuf (2013) report that the reduction or abolishment of the minimum capital requirement in five major European jurisdictions not only helped promote domestic legal forms but also increased the extent of entrepreneurship in the respective economies more generally.

The remainder of this paper proceeds as follows. The next section develops a theoretical framework that leads to empirical predictions on how the design of exemptions affects securities issuance and investment in firms that use

crowdfunding. These empirical predictions are formally derived and discussed in Section 3. Section 4 presents a brief overview of the exemptions that are effective in the securities laws of the US, Italy, Austria, the UK, France and Germany. Section 5 provides evidence on how these rules affect crowdfunding campaigns. Section 6 discusses how the rules have performed so far and concludes.

## 2. MODEL DESCRIPTION

We model an economy populated by a continuum of firms that differ along their capital needs and seek external funding from the crowd. Our theoretical framework is based on managerial agency costs that find their roots in the work of Jensen and Meckling (1976). We consider a regulator that imposes costly disclosure requirements that mitigate these agency costs. The regulator decides on the level of exemptions.

### 2.1. Issuing Firms

We consider an economy populated by a continuum of firms uniformly distributed along the capital needs dimension  $\tilde{\theta} \sim [0 ; \Theta]$ , which specifies the level of their individual investment opportunities. Firms have a return on investment (ROI) of  $v > 0$  (identical for all firms) up to the level  $\tilde{\theta}$  and 0 beyond.<sup>9</sup> Thus, the amount  $\tilde{\theta}$  represents external capital needs as well as ‘desired’ investment size.

Under this setting, a firm raising and investing an amount  $\theta \leq \tilde{\theta}$  will generate value of  $(1 + v)\theta$ . The resulting net present value (NPV) equals  $v\theta$ , given that investments represent  $\theta$ . Entrepreneurs, however, can divert a fraction  $\delta > 0$  of the NPV so that shareholders eventually receive only a value of  $(1 - \delta)v\theta$ . Entrepreneurs privately extract a value of  $(1 - x)\delta v\theta$  from this diversion, where  $0 \leq x \leq 1$ ; the remaining fraction  $x$  (i.e., the value  $x\delta v\theta$ ) is lost in the course of the value diversion. To restrict the analysis to the case in which agency costs arise, we limit inefficiency to the following condition:

CONDITION 1:  $x < 1 / (1 + v)$ .

---

<sup>9</sup> Assuming instead that  $\text{ROI} < 0$  for investments above  $\tilde{\theta}$  would yield qualitatively similar results.

Condition 1 ensures that, in equilibrium, entrepreneurs will divert corporate resources whenever they are not constrained by regulation.

We assume that firms have no internal funds available and thus need to raise the entire capital on a crowdfundering portal. In other words, we consider crowdfundering the only way to raise capital. This way, we can isolate the specific effect of that source of funding. For simplicity, we assume that the entrepreneur owns 100 percent of the firm before the crowdfundering campaign. When raising capital, entrepreneurs give up a fraction  $(1 - \alpha)$  of the equity to the crowd and retain the rest. The value of  $\alpha$  is determined so that the crowd is willing to invest (i.e., it is offered a take-it-or-leave-it offer), while facing an opportunity cost of 0. By construction, we require  $0 \leq \alpha \leq 1$ . Note that our framework is not limited to equity finance but considers external finance more generally. Appendix 1 presents the case of debt crowdfundering, where we obtain qualitatively similar results.

## 2.2. The Regulator

The regulator imposes registration and disclosure requirements for any public security offer above a given threshold amount  $T > 0$ . A higher threshold value implies lower investor protection in general, because fewer firms comply with securities regulation. We define the variable  $T$  as representing an ‘exemption’ from the general registration and disclosure requirements imposed by national regulators. This view is consistent with real-world exemptions, as we show in section 4.2.2.

Complying with these requirements leads to fixed costs of  $C > 0$  for the firms. These costs may arise for different reasons; some may be incurred by filing with the regulator, while others may be due to the disclosure of relevant information to investors on a regular basis after the approval. Firms complying with disclosure regulation do not face agency costs (i.e., entrepreneurs can no longer divert value for private purposes). Consistent with practice, we assume that firms can only seek compliance with the regulator if their capital needs are larger than  $T$ .

In an extension (Section 3.3.), below the threshold  $T$ , we permit shareholders to impose voluntary enforcement by setting corporate governance and disclosure rules that provide the same level of investor protection as compliance with the regulator. However, this extension seems only realistic in the presence of sophisticated investors; that is, we assume that even if such governance rules were included in a contract, crowdinvestors could not enforce them because of coordination problems (Olson, 1965). Crucially, Condition 1 states that even if such rules are negotiated, the entrepreneur may want to deviate and thus still extract personal benefits. This occurs when proper governance cannot be enforced by crowdinvestors. We consider this a reasonable assumption for the considered market, given the type of individuals participating there. However, in general more sophisticated private parties enforce this through the optimal design of shareholder agreements and costly governance structures that constrain management actions. We explore this alternative setting in which sophisticated investors, such as business angels and venture capitalists, also participate in an equity purchase in Section 3.3.

We consider a ‘benevolent’ regulator who maximizes total welfare in the economy (i.e., the sum of value created by the firms seeking external finance).<sup>10</sup> This means that the regulator is not subject to any inefficiency or agency problems. Rather, the regulator balances the costs and benefits generated by setting the variable  $T$ .

### 2.3. Time Line

We consider the following time line. First (at time  $t = 1$ ), the regulator sets  $T$ , which becomes public knowledge. Second, at  $t = 2$  entrepreneurs make investment decisions; that is, they decide how much to raise and thus offer a fraction  $(1 - \alpha)$  of the cash flow rights to the crowd. This decision affects whether firms are required to comply with securities regulation or not. Finally, at  $t = 3$  firms realize their payoffs, which are then distributed. Consistent with rational decision making, we solve the game by backward induction.

---

<sup>10</sup> The literature distinguishes between two main types of theoretical models of regulation (Mulherin, 2007): [a] ‘public interest theories’, which are based on the idea that regulation acts in response to market failure, such as information asymmetry problems, and thus regulation is designed to mitigate market failure and thereby improve social welfare, and [b] ‘special interest theories’, which argue that regulation is put in place because of political lobbying of interest groups. Our approach fits the first type of model.

### 3. IMPACT OF INVESTOR PROTECTION ON ECONOMIC OUTCOME

#### 3.1. Firms' Choice of Securities Issuance

We maximize firm value based on the entrepreneur's perspective. This is consistent with rational behavior. We need to consider two separate cases:

[1] Firms with  $\tilde{\theta} > T$ :

The entrepreneur needs to choose whether to comply, in which case the firm will seek capital amount of  $\tilde{\theta}$ , or not, in which case the firm only raises  $T$ . In the first case, the entrepreneur receives  $\alpha[(1 + v)\tilde{\theta} - C]$ , subject to  $(1 - \alpha) = \tilde{\theta} / [(1 + v)\tilde{\theta} - C]$ . In equilibrium, she receives (net of investment  $\tilde{\theta}$ )  $v\tilde{\theta} - C$ . In the second case, the entrepreneur receives  $\alpha[(1 + v)T - \delta vT] + (1 - x)\delta vT$ , subject to  $(1 - \alpha) = T / [(1 + v)T - \delta vT]$ . This leads to the following gain:  $(1 - x\delta)vT$ . The entrepreneur seeks compliance iff  $v\tilde{\theta} - C > (1 - x\delta)vT$  or  $v[\tilde{\theta} - (1 - x\delta)T] > C$ . In other words, firms with  $\tilde{\theta} > (1 - x\delta)T + C/v$  seek prospectus approval, and others do not. This leads to the following social welfare for firms with  $\tilde{\theta} > T$  (shareholders earn NPV of 0 in equilibrium):

$$\begin{aligned} & (\Theta - ((1 - x\delta)T + C/v)) \cdot [1/2 \cdot v[\Theta - ((1 - x\delta)T + C/v)] - C] \\ & + (((1 - x\delta)T + C/v) - T) \cdot [(1 - x\delta)vT]. \end{aligned}$$

[2] Firms with  $\tilde{\theta} \leq T$ :

The entrepreneur seeks no registration under the imposed Condition 1. The firm will raise capital amount of  $\tilde{\theta}$ . The entrepreneur receives  $\alpha[(1 + v)\tilde{\theta} - \delta v\tilde{\theta}] + (1 - x)\delta v\tilde{\theta}$ , subject to  $(1 - \alpha) = \tilde{\theta} / [(1 + v)\tilde{\theta} - \delta v\tilde{\theta}]$ . Thus, the entrepreneur receives  $(1 - x\delta)v\tilde{\theta}$ . This leads to the following social welfare:

$$(T - 0) \cdot [1/2 \cdot (1 - x\delta)v(T - 0)].$$

The two cases cannot be directly compared, because the firms have different values of  $\tilde{\theta}$ . Firms in Case [1] have more investment opportunities than those in Case [2]. An increase in  $T$  leads some 'large' firms to comply less often (leading to

inefficiency in more firms), while more firms will comply in Case [2] because financing costs are higher due to moral hazard.

### 3.2. Market Equilibrium under Endogenous Regulation

We now turn to the regulator's maximization problem. Because firms are uniformly distributed along the 'segment'  $[0 ; \Theta]$ , we obtain

$$\begin{aligned} \text{argmax (T):} \quad & (\Theta - ((1 - x\delta)T + C/v)) \cdot [1/2 \cdot v[\Theta - ((1 - x\delta)T + C/v)] - C] \\ & + (((1 - x\delta)T + C/v) - T) \cdot [(1 - x\delta)vT] \\ & + (T - 0) \cdot [1/2 \cdot (1 - x\delta)v(T - 0)]. \end{aligned}$$

The first term represents firms that seek registration and raise their optimal level of capital. The second term includes firms that avoid registration and thus only raise  $T$ , which is inefficiently low compared with their available investment opportunities. The third term corresponds to the smallest firms for which disclosure is too costly, and thus they face agency costs even though they raise the optimal amount of capital. Firms in the second and third cases generate agency costs but no compliance costs, while the firms in the first case face compliance costs but no agency costs. Those in the second case also face another inefficiency in that they raise less than their optimal level of capital.

An increase in  $T$  (*less investor protection*) has the following effects: [a] fewer firms in Case [1] (first term in the previous equation) will seek compliance with the regulator; [b] firms that avoid compliance in Case [1] (second term) will on average raise more money (because they raise exactly the amount  $T$  to stay below the threshold, which is now higher) and thus create more value (they forgo less investment opportunities); and [c] more firms will issue securities to the crowd under the regulatory exemption and face agency problems.

This leads to the following optimal level:

$$T^* = \frac{v\Theta - 3C}{v(2 - 3x\delta)}.$$

While the term on the right-hand side is not intuitive, it is possible to derive comparative static results for  $T^*$ :

[1]  $\partial T^*/\partial C < 0$ : Higher costs generate higher burden on firms that comply, leading more firms to inefficiently issue securities at a level below or equal to  $T$ . A decrease in  $T^*$  (*stronger investor protection*) makes inefficient capital raising more costly, because firms need to distort their financing choices even more. To counter-balance this inefficiency cost, more firms will comply. Given the strategic decision of these firms, the regulator reduces the level of  $T$ .

[2]  $\partial T^*/\partial v < 0$ : An increase in the level of ROI affects the regulatory equilibrium in two opposite ways. First, more firms will comply with regulation as gains become higher; this leads the regulator to increase  $T$ . Second, the increased ROI level reduces the costs related to inefficient fund-raising; this induces the regulator to reduce  $T$  to avoid more firms distorting their fund-raising level. For a reasonable level of ROI (i.e., for  $v < 3C/2\Theta$ ), the former effect is larger than the latter effect. Otherwise, the opposite is true.

[3]  $\partial T^*/\partial x > 0$ : An increase in  $x$  (i.e., the fraction of value that is lost in the course of entrepreneurial rent extraction) makes agency problems more costly for the entrepreneur. The entrepreneur is then less willing to seek issuance under the exemption. This enables the regulator to increase  $T$  so that the costs related to inefficient fund-raising are lower for the other firms.

[4]  $\partial T^*/\partial \delta > 0$ : Higher agency costs lead to greater inefficiency at the firm level, which leads more firms to seek prospectus approval. This, in turn, results in weaker investor protection (higher level of  $T$ ), because the regulator can then increase the threshold  $T$  to reduce inefficient fund-raising of other firms.

We consider two extreme cases to provide more insight into the economic channel through which regulation affects investment decisions of firms in the economy.

[1] Case of  $T = 0$  (no exemptions):

In this case, all firms need to comply. Such a requirement will drive some firms from the market (those with  $v\tilde{\theta} - C < 0$ ; i.e., firms whose  $\tilde{\theta} < C/v$ ), because now all the firms incur fixed costs  $C$ . These costs are too high for the smallest firms in the economy. Social welfare is now as follows:

$$(\Theta - C/v) \cdot [1/2 \cdot v(\Theta - C/v) - C].$$

[2] Case of  $T = \Theta$  (no regulation at all):

In this case, all the firms face managerial moral hazard, but no firms are driven from the market. Social welfare is now as follows:

$$(\Theta - 0) \cdot [\frac{1}{2} \cdot (1 - x\delta)v(\Theta - 0)].$$

### 3.3. Presence of Sophisticated Investors

We now assume that effective governance rules can be enforced internally, notably when sophisticated investors participate in financing; this mechanism is less likely to be enforceable under classical crowdfinancing, because the crowd is dispersed and rather passive. In addition, the crowd does not sit on the board of directors of the firms. However, business angels and venture capitalists traditionally do enforce such contracts, because they hold larger equity stakes and participate on the board of directors. Moreover, they generally draft tailored contracts that enable effective intervention in case founders do not behave due diligently. While this may lead to a somewhat different level of efficiency gains (i.e., reduction in agency costs), we assume that voluntary enforcement leads to the same efficiency gains as with the regulator. For costs, we define them by the variable  $M > 0$ , which may differ from costs  $C$ . It is unclear whether these costs and efficiency costs are higher or lower in practice; however, it seems sufficiently plausible that efficient private contracting by sophisticated investors offer at least the same level of efficiency gains (i.e., reduction in agency costs) as regulatory compliance. In any case, we regard costs  $M$  not as monitoring costs but rather as costs related to voluntary compliance. Thus, these costs are borne by the firm, not the investors.

We examine the case in which the entrepreneur is willing to voluntarily commit *ex ante* to better governance. This was not the case under Condition 1. Therefore, we continue taking the perspective of the entrepreneur. To this end, we first consider the unconstrained case (i.e., abstracting from the threshold  $T$ ).

Under voluntary compliance, the entrepreneur receives  $\alpha[(1 + v)\theta - M]$ , subject to  $\alpha = 1 - \theta / [(1 + v)\theta - M]$ . Thus, she receives  $v\theta - M$ . With a lack of compliance, the entrepreneur receives  $\alpha[(1 + v)\theta - \delta v\theta] + (1 - x)\delta v\theta$ , subject to  $\alpha = 1 - \theta / [(1 + v)\theta -$

$\delta v\theta$ ]. Thus, she receives  $(1-x\delta)v\theta$  in equilibrium. The entrepreneur seeks voluntary compliance iff  $v\theta - M > (1 - x\delta)v\theta$  (i.e.,  $x\delta v\theta > M$ ).

In other words, firms with  $\theta > M / (x\delta v)$  seek voluntary compliance, while others do not. This threshold differs from the earlier outcome, in which compliance was optimal for  $v[\theta - (1 - x\delta)T] > C$ , or  $\theta > (1 - x\delta)T + C/v$ . For  $M = C$  and  $\theta > T$ , forced compliance is more likely due to the extra cost arising from the distorted capital amount raised. However, this may be reversed if  $M < C$  or if  $\theta < T$ . In the second case, firms cannot register with the regulator; thus, only voluntary compliance is possible and is optimal whenever the condition  $x\delta v\theta > M$  is met. In the rather unrealistic case in which  $M = 0$ , all the firms seek voluntary compliance by attracting professional investors to their boards, who would then enforce contracts.

In summary, the presence of sophisticated investors, such as business angels on crowdfunding portals, may improve efficiency because it permits some of the firms that would otherwise remain unregulated (either because they fall below the limit of  $T$  or because they inefficiently make issuances below  $T$ ) to commit *ex ante* to better governance rules.

### 3.4. Empirical Implications

The parameter  $T$  can be directly interpreted as the level of investor protection, in which a *lower* value of  $T$  represents *more* investor protection *on average*. The conclusions of our theoretical model lead to the following empirical predictions. More investor protection leads to fewer crowdfunding campaigns under securities regulation exemptions. This may eventually create a smaller crowdfunding market, because many firms will find it economically not worthwhile to seek prospectus approval by the national regulator. In the absence of any exemptions, smaller firms may even refrain from entering the market in the first place (firms whose  $\theta < C/v$ ). While the complete absence of an exemption ( $T = 0$ ), such as that in the US, leads to exclusion of firms with the lowest capital needs, very high exemptions (e.g.,  $T \geq \Theta$ ) lead to significant agency costs for the economy.

Our main conclusion from this analysis is that regulation that maximizes investor protection hurts small firms, and those relying on crowdfunding are likely to be smaller firms. At the country level, optimal regulation trades off the costs of ensuring sufficient investor protection in firms that can afford these costs and for which it is efficient to impose them with the benefits of ensuring access to capital to smaller firms. Extensive access to capital, however, comes at the expense of weakening investor protection.

#### 4. SECURITIES REGULATION AND CROWDFUNDING

While most of the reforms undertaken by national legislators find their roots in financial crises, accounting scandals and the offering of fraudulent securities (Zingales, 2009), today's changes (or proposed changes) in securities regulation are also driven by financial innovation arising from the way information flows through the Internet. In recent years, these changes have allowed entrepreneurs to use crowdfunding through the Internet to grab the attention of the crowd. In the context of crowdfunding, exemptions to prospectus regulation are most critical because many of the firms using crowdfunding make smaller offers.

A cornerstone of securities regulation is mandatory disclosure of certain types of information (see Zingales, 2009, for an insightful discussion of why and when mandatory disclosure may generate social benefits). Firms issuing securities to the general public under one of the exemptions do not need to comply with mandatory disclosure, leading to weaker investor protection in these firms. However, as discussed previously, exemptions can be prohibitively high such that the same firms may otherwise not raise money in the first place. Empirical evidence also shows that crowdfunders themselves demand more disclosure, as a way to sufficiently protect their investments and make sound investment decisions (Cumming and Johan, 2013).

In the next section, we discuss how crowdfunding takes place in practice, focusing on the role of platforms in structuring contracts and the form of the offer. In Section 4.2, we discuss securities regulations in the US and in different European countries, with a particular focus on the functioning of crowdfunding.

#### 4.1. The Legal and Financial Structure of Crowdfunding

Most often crowdfunding takes place through a portal, on which entrepreneurs can meet their potential investors (Hornuf and Schwienbacher, 2014). In some jurisdictions, these portals might also provide investment advice or handle investor funds; consequently, they may need to register themselves as financial intermediaries or even need to obtain a license, similar to issuers being required to comply with securities regulation. Depending on the type of portal (offering debt or equity security contracts), these laws may differ. In some countries, crowdfunding portals operate without a specific license and simply provide an Internet platform on which issuers can pitch their campaigns. In addition to offering entrepreneurs the ability to present their firms and announce their funding needs, crowdfunding portals frequently offer standardized financial contracts to the issuer. For investors, these contracts are take-it-or-leave-it offers with generally no possibility for them to negotiate terms. These boilerplate contracts offer limited covenants to crowdfunders as compared with those signed with business angels or venture capitalists.

Investments take place if a minimum pledge by the crowd is achieved. Without this minimum pledge, commitments by investors are generally cancelled. Some portals structure the investment by pooling the investments of the crowd in a financial vehicle. This vehicle then invests the collected amount in the entrepreneurial firm so that, from the perspective of the entrepreneur, only a single shareholder purchases the shares. Portals may act as trustees for these financial vehicles. In case of an exit, this would allow a potential buyer to negotiate with a single contact instead of a much-dispersed crowd. Other portals, such as Anaxago in France, offer direct investments by the crowd, granting tax benefits to the crowd and avoiding management fees.

Portals mostly pursue a fee-based business model. They obtain a pre-determined success fee of up to 10 percent of the transaction value, which is payable by either the issuer or the crowd or split between the two parties. When the investment takes place through a financial vehicle, portals also receive management fees, which guarantee extra revenues. Because market exits (divestments) are likely to occur only a few

years later, these management fees lead to more stable revenues for managers of portals.

## 4.2. Securities Regulations in the United States and in Different European Countries

In recent years, at least four jurisdictions have reformed or will soon modify their securities regulation to suit the needs of crowdfunders more effectively, while also protecting investors from fraud up to a certain level and reducing legal uncertainty for issuing firms. Regulatory changes have largely occurred in response to crowdfunders not being able to exploit the existing legal exemptions for their business needs and from lobbying efforts by the alternative investment industry.<sup>11</sup> In what follows, we investigate how legislators have tried to unwind the inefficiency at the firm level that we outlined in the theoretical model.

### 4.2.1. United States

As a principal rule of US securities law, securities that are offered to the general public must be registered with the SEC. This is to protect investors from securities fraud by holding the issuer and underwriter of the security liable in case of material misstatements or omissions of material facts. However, to account for the needs of small offerings, exemptions to this rule exist. For example, accredited investors who can ‘fend for themselves’<sup>12</sup> or public offers up to \$5,000,000 have been exempted from registration with the SEC.<sup>13</sup> However, while the former exemption does not per definition apply to the larger crowd, the latter exemption was of no use for crowdfunders because registration at the state level was still required, making a geographically dispersed offer prohibitively expensive.

It was mainly for this reason that the US Congress passed detailed rules specifically tailored to crowdfunders. On April 5, 2012, the JOBS Act went into effect, amending the existing exemptions for raising capital under § 4(6) of the Securities

---

<sup>11</sup> See, for example, the efforts made by Startup Exemption (<http://www.startupexemption.com>), Crowdfunding Capital Advisors (<http://crowdfundcapitaladvisors.com>) or the European Crowdfunding Network (<http://www.europecrowdfunding.org>).

<sup>12</sup> See *Ralston Purina*, 346 US 119, 125 (1953), as well as Rule 506(b)(2)(ii) of Regulation D Securities Act.

<sup>13</sup> Regulation A, 17 CFR §§ 230.251-230.263 (2012).

Act. According to Title III of the JOBS Act (also referred to as CROWDFUND Act; Capital Raising Online While Deterring Fraud and Unethical Non-Disclosure Act), issuers can now raise an aggregate amount of up to \$ 1,000,000 during a 12-month period without filing a registration statement with the SEC or at the state level. The legislator tied this exemption, however, to three conditions: the usage of a broker or funding portal, limitations on the amount that can be sold to individual investors and disclosure requirements for the issuers.

According to § 4(6)(C) of the Securities Act, issuers can now offer or sell securities without a registration statement if the transactions is conducted through a broker or funding portal as defined in § 3(a)(4) and § 3(a)(80) of the Securities Exchange Act. In this way, the JOBS Act *de facto* established a private gatekeeper for crowdfunding issues, which is supposed to ensure the correctness and completeness of the securities offered. However, the JOBS Act did not make explicit that funding portals would be liable for material misstatements or the omission of material facts by the issuer. While the JOBS Act explicitly states that crowdfunding issuers will be liable for such offenses<sup>14</sup>, it could be argued that the liability of the funding portal can be derived from Rule 10b-5 of the Code of Federal Regulations (CFR) as well as previous Supreme Court decisions (Knight et al., 2012).

In addition, the US legislator strives to protect investors through the aggregate amount that an issuer can sell to them. According to the JOBS Act, the amount sold to a single investor shall not exceed the greater of either \$2,000 or 5 percent of the annual income or net worth of an investor if either the annual income or the net worth of the investor is less than \$100,000. If the annual income or the net worth of the investor is equal to or exceeds \$100,000, the aggregate amount sold to the investor shall not exceed 10 percent of either its annual income or net worth, with the respectively greater value applying. In any case, the maximum aggregate amount sold to a single investor shall not exceed \$100,000.

Finally, § 4A(b) of the Securities Act defines the type of information that must be disclosed to potential investors. If the aggregate target offering amount is equal to or

---

<sup>14</sup> JOBS Act, Pub. L. 112-06, 126 Stat. 302(b), § 4A(c)(2), 126 Stat. 306, 319 (2012).

below \$100,000, issuers must provide their most recent income tax returns and financial statements, which must be certified by the principal executive officer of the issuer. For issues of more than \$100,000 but less than \$500,000, financial statements must be provided and reviewed by a public accountant, who should be independent from the issuer. Furthermore, the accountant must use professional standards and procedures for the review. For issues of more than \$500,000, audited financial statements must be provided by the issuer.

In summary, the US crowdfundering legislation has not only established a critical value of T (\$1,000,000) but also set thresholds for the amounts an individual can invest. By considering the compliance costs associated with the provision of information, the JOBS Act further outlined a three-step approach on information disclosure. These regulatory measures were combined with the establishment of a private gatekeeper. Although the US was the first country to pass specific legislation on crowdfundering, not a single issue has taken place so far, as specific rules still must be implemented by the SEC.

#### 4.2.2. Selected Regulations in the European Union

The prospectus regulation in the EU has been harmonized through directives that were then enacted through national implementation laws by the respective EU member states. Therefore, it is useful to first present EU-level regulation for prospectus regulation before discussing the recent reforms undertaken by individual jurisdictions.

A main attempt to harmonize regulation on registration statements was made with the Directive 2003/71/EC of 4 November 2003, which specifies when and how a prospectus must be published when securities are offered to the public. More recently, it was amended by the Directive 2010/73/EU of 24 November 2010, which, among other things, modified the extent of certain exemptions. Since this directive came into effect, exemptions to publishing a prospectus apply if at least one of the following criteria is met:

- [a] The offer is addressed solely to qualified investors;

- [b] The offer is addressed to fewer than 150 natural or legal persons per member state, other than qualified investors;
- [c] Investors purchase securities for a total consideration of at least €100,000 per investor;
- [d] The denomination per unit amounts to at least €100,000; and
- [e] The offer of securities represents a total consideration of less than €100,000 over a 12-month period.

In addition to these exemptions, the directive stipulates that national regulators of the EU member states have discretion to increase the amount in point [e] up to €5,000,000, either unconditionally or subject to additional requirements (Assmann, Schlitt and von Kopp-Colomb, 2010).

The former Directive 2003/71/EC stipulated thresholds of 100 in point [b], €50,000 in points [c] and [d], and €2,500,000 for the additional discretion given to national regulators. Note that the new directive does not mean less investor protection *per se*. While changes made in point [b] extend exemptions, points [c] and [d] reduce the possibilities to obtain an exemption, because the threshold values have increased from €50,000 to €100,000.

#### A. Italy

The Italian legislator amended the existing securities law (TUF, *Testo Unico della Finanza*) and adopted the first specific crowdinvesting legislation in Europe. On December 17, 2012, the new law 221/2012 went into effect, implementing decree n. 179 (*Decreto Crescita 2.0*). It is important to note, however, that the new exemptions applied only to online portals raising external capital for ‘innovative startups’—so-called *startup innovativa*. Innovative startups complying with the law can now offer securities of up to €5,000,000 without the obligation to register a prospectus. For other *non*-innovative startups, the critical value of €100,000 as stipulated by Directive 2010/73/EU still applies.

The legal definition of an ‘innovative startup’ is geared to corporations, which are not registered with a regulated market or a multi-lateral trading facility and fulfill the following criteria:

- [a] Natural persons should hold the majority of the firm's equity capital as well as voting rights and continue to do so for the subsequent 24 month;
- [b] The incorporation and business operations of the firm should have taken effect no more than 48 months ago;
- [c] The management is located in Italy, and the main business activities of the firm take place in Italy;
- [d] The annual turnover in the second year of business as stated in the last accounts does not exceed €5,000,000;
- [e] The firm does not and did not make payouts to shareholders using previous corporate profits;
- [f] The sole or main purpose of the firm is to develop, produce and sell innovative products or services with a high technological value;
- [g] The firm was not established as part of a merger, de-merger or sale of a corporation or corporate entity; and
- [h] The firm fulfills at least one of the following conditions:
  - 1) The firm invests at least 20 percent of the greater of the annual production costs or the production value in R&D;
  - 2) One-third of the employees have obtained a PhD, are enrolled in a university PhD program or have worked for more than three years in a private or public research institution; and
  - 3) The firm owns a patent on an industrial, biotech or electronic semiconductor innovation related to the purpose of the corporation.

Although the Italian securities regulator (Consob, *Commissione Nazionale per le Società e la Borsa*) was required to set up a public register and define disclosure requirements for issuers, it did not define which exemptions and T value would apply for *non-innovative* startups. In summary, the Italian crowdfundering regulation established a very narrow exemption, which might lead to a considerable amount of legal uncertainty. By early 2014, the Italian crowdfundering market was still very small, with the leading portal SiamoSoci selling minimum investment tickets in the range of €5,000 to €50,000, largely imitating an Internet-based business angel network.

## B. Austria

In July 2013, the Austrian legislator changed the national securities law (KMG, *Kapitalmarktgesetz*) and raised the critical value of T from €100,000 to €250,000. In October 2013, the first crowdfunder was then offered to investors by the portal 1000x1000, with the first issuer Woodero raising a total of €166,950 after a nearly eight-week funding period. The amount clearly exceeded the initial threshold of T, indicating that issuers would have been constrained under the earlier regulation.

### C. United Kingdom

The UK appears to possess one of the most developed crowdfunder markets that currently exist, with Germany being the closest contestant. By early 2014, issuers in both countries raised more than £28,000,000 and €20,000,000 respectively (Collins, Swart and Zhang, 2013; Hornuf, 2014). In the UK, crowdfunder currently takes place under the general securities regulation, more precisely the Financial Services and Markets Act 2000.

In October 2013, the Financial Conduct Authority (FCA) initiated a consultation on a specific crowdfunder regulation.<sup>15</sup> The proposed regulation aims to make crowdfunder ‘more accessible to a wider, but restricted, audience’ of investors, while also ensuring that ‘only those retail investors who can understand and bear the various risks involved are invited to invest in unlisted shares or debt securities’.<sup>16</sup> Similar to the US approach, the FCA proposed restricting offers to sophisticated investors, high net worth investors, retail clients who confirm that they will receive regulated investment advice or investment management services from an authorized person, or retail clients who certify that they will not invest more than 10 percent of their net investible portfolio in unlisted shares or unlisted debt securities.<sup>17</sup>

### D. France

---

<sup>15</sup> See Consultation Paper CP13/13 ‘The FCA’s regulatory approach to crowdfunding (and similar activities)’ October 2013.

<sup>16</sup> Consultation Paper CP13/13, p. 36.

<sup>17</sup> Consultation Paper CP13/13.

As a member state of the EU, France implemented the Prospectus Directive 2010/73/EU and thus applies the same rules as other EU jurisdictions, with some adaptations. The exemption for security offers with a total amount of less than €100,000 applies. However, for the range between €100,000 and €5,000,000, exemptions only apply if the total amount raised does not exceed 50 percent of the existing equity capital of the firm. For example, a firm can raise €200,000 without a prospectus and registration if it already possesses equity capital of at least €400,000. This is unlikely to occur for firms relying on crowdfunding, because they generally have little capital on the balance sheet before a successful campaign. Note that some French portals, such as Anaxago, do not use the €100,000 limit to exempt firms from the prospectus regulation but rather limit the offer to fewer than 150 non-accredited investors. This means that the portal gives access to the documentation and contract of a specific investment offer only to a maximum of 149 people. Consequently, investors are required to participate with high minimum tickets, as only a subset of the 149 people may eventually invest. The advantage is that the total amount of the equity issuance is not limited to €100,000. For the successful investments done so far, the average number of crowdfunders on Anaxago is 25, with an average amount raised of more than €320,000.

Importantly, French portals need to obtain a license from the French securities regulator AMF (*Autorité des Marchés Financiers*) because they act as financial intermediaries and thus are subject to their own rules. The current legal status and requirements in terms of capital imposed on financial intermediaries make it costly for portals to comply.

In 2013, the AMF proposed a framework aimed to facilitate crowdfunding. This proposal was under public consultation until November 2013. The goal of future legislation is to regulate both the portals and the issuers. On February 14, 2014, the ministry announced measures that will become effective on July 1, 2014. Among other things, the proposal contains the following items with regard to crowdfunding using equity<sup>18</sup>:

---

<sup>18</sup> France differentiates significantly between debt and equity crowdfunding, because, so far, banks have had the monopoly on remunerated loans to companies. In the course of this current reform, banks will lose their monopoly power, and the crowd will be permitted to lend directly to firms,

- [a] The creation of a separate legal entity for accredited portals that differs from the one that other financial intermediaries use (so-called *Conseiller en Investissement Participatif*); no minimum equity capital is required for this legal entity.
- [b] Investors must undergo a test that determines their risk profile, the results of which must be in line with the risks involved in crowdfinancing.
- [c] The threshold of exemption to be increased to €1,000,000, provided the crowdfinancing campaign takes place on an Internet portal that has received formal approval of the AMF.
- [d] Obligation of the issuers to supply simplified documentation to the investors, as described in the reform; however, this documentation is expected to be a few pages long only and is not subject to approval by the AMF.

#### E. Germany

Unlike other European countries, Germany did not pass a specific legislation and largely followed a laissez-faire approach to crowdfinancing, which consequently has taken place within the scope of the existing securities law (see Weinstein, 2013, for a related discussion). As a general rule, the German Securities Prospectus Act (WpPG, *Wertpapierprospektgesetz*) sets the critical value of T equal to €100,000 (§ 3 Abs. 2 Satz 1 Nr. 5 WpPG). However, the definition of what constitutes a security is not all-encompassing and leaves out specific forms of profit participating loans (e.g., *partiarische Darlehen*). In turn, this omission leaves scope for the issuers either to comply with the existing exemptions and raise up to €100,000 or to bypass the securities law altogether by structuring the financial contract in a way that allows for offers of unlimited amounts.

## 5. HOW SECURITIES REGULATION AFFECTS CROWDFINANCING

In this section, we illustrate the impact of exemptions as defined in national securities regulation on the structure of portals, crowdfinancing campaigns and the type of

---

subject to an overall limit of €1 million per loan and €1,000 per individual lender per project. However, individuals may invest in as many projects as they wish.

investors attracted. While data availability does not permit large-scale analysis, our approach is to offer different pieces of evidence on such impact. Our work is therefore exploratory. However, we believe these pieces of evidence are insightful and meaningful for contributing to a discussion on current attempts to reform securities regulations as a means to encourage crowdinvesting.

### 5.1. Structure of Crowdinvesting Portal

Corporate and securities law affect the structure of the crowdinvesting portals in at least three important respects. First, while crowdinvesting portals might help the issuers structure their emission in a way to be exempt from the prospectus requirement, portals themselves might be set up under a legal structure to avoid registration with the securities regulator. The European practice on whether crowdinvesting portals must register—for example, as investment intermediaries or to obtain a bank license—greatly differs across countries. While most German portals do not register under either of these two regimes<sup>19</sup>, French portals do. Equity crowdinvesting portals such as Wiseed and Anaxago are registered as financial intermediaries with the French regulator AMF, from which they need to obtain authorization to operate. Similarly, corporate lending portals are assimilated to credit institutions in France, because only credit institutions are currently allowed to lend to companies. Because licenses for credit institutions currently require substantial capital on the balance sheet (up to €5 million), corporate lending-based portals in France tended to cooperate with banks, as was the case with Friends Clear.<sup>20</sup> However, the new reform will make corporate lending-based portals easier in France. Even within a single jurisdiction, portals might use different legal structures. In England, Seedrs was registered with the FCA and consequently restricted itself to investors who were knowledgeable enough to pass an investor test (Weinstein, 2013). The other major portal in England Crowdcube has not yet registered with the FSA. The portal operates similar to a forum, in which potential investors locate campaigns and then independently engage in investments (Weinstein, 2013).

---

<sup>19</sup> A notable exemption is Bergfürst, which allows for the issue of ordinary stocks and provides a secondary market on which stocks can freely be traded.

<sup>20</sup> See <http://www.mipise.com/en/topics/crowdfunding-reglementation.html> (last accessed February 19, 2014). The portal Friends Clear, however, has since closed, while Unilend just started operating in France.

Second, if no specific legal exemption is available that suits the needs of crowdfunders, crowdfunder portals sometimes adopt a structure similar to that of angel-investing networks. This is particularly true for portals operating in the US, such as CircleUp, which is set up as a private, password-protected network for accredited investors only.<sup>21</sup> Switzerland is not a member state of the EU, so the exemptions from Directive 2010/73/EU have not been implemented in the national securities law. One of the first Swiss portals c-crowd therefore resembles an Internet-based business angel network. Unlike many other portals, c-crowd investors do not need to invest a minimum amount but must personally negotiate the investment and contract design with the respective entrepreneur. Thus, if portals imitate business angel networks, very high minimum investment tickets may be a good indicator of the stringency of national securities law.

Third, national corporate law also affects the entrepreneurial choice of equity or debt finance. In the case of Germany, of the 115 successful funding campaigns up until February 15, 2014, only one issuer opted for equity. The most important reason other issuers have adopted debt or some mezzanine form of finance is that incorporating and transferring shares of a private limited liability company requires incurring the costs of a notary (Braun et al., 2013), while the mezzanine form of finance used by the majority of issuers does not. Although this is a somewhat different form of compliance than that outlined in the theoretical model—namely, compliance with the requirements of corporate law—it appears to be equally relevant for the financial contracts offered by crowdfunder portals.

## 5.2. Structure of Crowdfunder Campaigns

As our theoretical model predicts, firms may restrict their fund-raising goal if the costs of compliance are too high. This is more likely to occur when the level of total considerations stipulated in the exemptions is low. One good example is Germany, which sets the critical threshold at the lower bound of €100,000. We illustrate this argument by relying on the cases of Seedmatch and Companisto.

---

<sup>21</sup> See <https://circleup.com/getting-started/> (last accessed February 2, 2014).

On October 31, 2011, Seedmatch successfully funded the first two startups through crowdinvesting in Germany. The contracts that Seedmatch provided to issuers were initially designed to comply with the German securities law (more precisely, the exemptions under § 8f Abs. 1 Satz 1, 1.Fall VerkProspG aF until May 31, 2012, and afterwards § 2 Nr. 3 lit. b VermAnlG). All the initial 26 crowdinvestings offered by Seedmatch used this exemption, and a total of 24 issues had to be terminated at the threshold of the exemption at €100,000, which indicates that issuers had higher capital needs. Moreover, as campaigns were sometimes funded very quickly<sup>22</sup>, firms' capital needs could have easily been satisfied by the crowd and were only constrained by the existing threshold under the securities law (see Figure 1).

[Figure 1 around here]

Seedmatch and other portals soon realized the legally imposed funding constraint and tried to circumvent the existing securities legislation. On November 29, 2012, Seedmatch offered for the first time a new financial contract—the so-called *partiarische Darlehen*, which is currently not classified as a financial instrument under the German securities law and thus does not require the registration of a prospectus. While there is still some legal uncertainty surrounding this issue, the *partiarische Darlehen* practically allows issuers to raise unlimited amounts without the obligation to draft and register a prospectus. The largest issue funded under this contractual design E-Volo raised a total of €1,200,000 in December 2013.

The crowdinvesting campaigns on Companisto show a similar trend after the portal switched contracts to the *partiarische Darlehen* on February 4, 2013. After the implementation of the new financial contract, Companisto was able to more than double the funding volumes per campaign, while in the case of Seedmatch, they more than tripled. The idea that the increase in funding volumes does not merely reflect a general trend in the selection of funding campaigns provides a comparison with Innvestment, which might serve as a control group because the portal has not adopted the *partiarische Darlehen* so far. The average funding size at Innvestment

---

<sup>22</sup> On November 29, 2012, it took Protonet only 48 minutes to raise €200,000 on Seedmatch.

was €83,155, just below the threshold of €100,000, and increased only slightly to 91,594 € in the period when Seedmatch adopted the *partiarische Darlehen*.

However, at least in some cases, the type of firm that received funding under the unrestricted financial contract changed as well. Average and median pre-money valuations of the firms to be funded increased for Seedmatch and Companisto, as did the average and median total assets of the firms making a securities offer (see Table 1). Although average and median pre-money valuations of Innovestment campaigns increased as well in the period after Seedmatch introduced the *partiarische Darlehen*, average total assets of firms offering their securities on Innovestment decreased greatly. This pattern could be interpreted as a first sign of money chasing deals in the sense of Gompers and Lerner (2000), as the most profitable firms had already offered their securities on one of the major crowdfunding portals. This observation receives support because not only did the average number of investors increase but so too did the average amounts they put down in a single campaign.<sup>23</sup>

[Table 1 around here]

Only recently has crowdfunding in Germany begun taking place under the traditional prospectus regime, which provides a legally well-known approach to raise larger amounts. In November 2013, the portal Bergfürst placed an issue with a total amount of €3,000,000 offering ordinary shares to investors. The issuer published a prospectus, which was previously approved by the German securities regulator (BaFin, *Bundesanstalt für Finanzdienstleistungsaufsicht*). Apparently, the funding volume of €3,000,000 was sufficient to cover the compliance costs of drafting and registering a prospectus. Around 1,000 investors funded the issuer Urbanara in an IPO auction.

### 5.3. Investors Characteristics

While securities law shapes the portal structure, portal structure, in turn, affects the types of investors participating in crowdfunding campaigns. As mentioned

---

<sup>23</sup> That the average number of investors decreased in the case of Innovestment might be due to the portal increasing the minimum investment ticket in some campaigns up to €25,000.

previously, some portals offer comparatively large minimum investment tickets to the crowd. This creates a way for the portals to filter the crowd. Consequently, certain investors are *de facto* excluded from crowdfunding. The Financial Conduct Authority (2013, p. 37) reports that crowdfunders in the UK ‘tend to be high-net worth individuals with investment experience’. The same holds for many users of the German crowdfunding portals, on which average investments range from approximately €308 (Companisto) to €3,243 (Innvestment).

In the case of Innvestment, minimum investment tickets range from €500 to €10,000. According to a survey by Klöhn and Hornuf (2012), more than half the Innvestment user base is self-employed, 41 percent are employed at a firm and the remaining 5 percent are either pensioners or civil servants (Figure 2, a). Moreover, many Innvestment users pursue a profession that might require solid knowledge of startup firms and finance. The majority of Innvestment users either are executives themselves or work in consulting, management, information technology, banking or financial services (Figure 2, b). Although this can be considered a first indicator of their financial sophistication, Innvestment users also report having experience in other assets classes (Figure 2, c). Four of five Innvestment users claim to have invested in ordinary stocks, while two-thirds have experience with investment funds and certificates. Such investment experience implies that the investments of the crowd constitute only a small part of the crowd’s overall portfolio.

Even within this particular asset class, the crowd appears well diversified. In the case of Companisto, in which the minimum investment tickets start at €5 (potentially attracting less sophisticated investors), the majority of the financiers who invested in the campaign ‘Schnuff & Co’ in December 2013 were holding a portfolio of five or more startups on Companisto (Figure 2, d). A considerable number of investors had even invested in 20 or more startups. The actual size of their crowdfunding portfolios might even be larger because they are likely to diversify their portfolios across various portals.

[Figure 2 around here]

## 6. DISCUSSION AND CONCLUDING REMARKS

Section 5 discussed several important aspects in terms of regulatory approaches adopted by different countries and in terms of the impact of existing regulations (particularly exemptions to prospectus regulation) on how crowdfundering portals operate and the outcome of crowdfundering campaigns. Securities regulation clearly affects the functioning of portals and the structure of crowdfundering campaigns.

We can categorize approaches in several ways, according to the relative weights put on regulating investors' access to securities, the portal as gatekeepers, or the issuers (mostly in terms of information disclosure and exemptions). So far, Germany has adopted a *laissez-faire* approach by avoiding extra regulation for crowdfundering. Because portals can operate without a license, German portals could develop very quickly and match firms with potential crowdfunders more easily and at relatively low costs. Moreover, that specific securities are not part of the securities for prospectus approval offers much flexibility to German issuers.

In contrast, portals in France need to be registered at the national regulator as financial intermediaries. This leads to higher costs but also more investor protection. The proposed amendments to current regulation aim to reduce these costs but make portals gatekeepers. This is likely to lead to fewer but larger issuances and more firms seeking prospectus approval (while the increase in the minimum threshold will also reduce the number of firms seeking prospectus approval).

The approach adopted by the US is to regulate not only the portals but also the crowd, by limiting the extent of risk it can take. As mentioned previously, non-accredited investors are entitled to invest through registered portals up to a specific fraction of their annual net income or wealth. Other countries do not regulate investment opportunities by the crowd.

Securities regulation ensures that investors receive the needed information to evaluate the company at the time of issuance and, provided that the information is accurate and complete, to obtain a fair value for their investment. A complementary way to protect the crowd is through sound corporate governance *ex post*, an important aspect that has

received scant attention in the regulatory debate. Information disclosure is an important component of good governance, but it is not enough; in other words, it is a necessary but not sufficient condition. Although it is a necessary condition to track whether an entrepreneur misbehaves, investors also need a mechanism and incentives to intervene to mitigate such misbehavior. In the absence of these, founders may lack accountability. Accredited investors, such as business angels and venture capitalists, protect themselves through well-designed contracts and the inclusion of covenants in shareholder agreements. Such investors also tend to hold a large stake, in contrast with crowdfunders, who are more dispersed shareholders. To protect crowdfunders, portals, which often help draft contracts, need to offer effective contracts.

Relatedly, these contracts should ensure that firms are able to raise follow-up funding, including funding from professional investors who may contribute larger amounts if the company develops high-growth potential. Some contract terms may hinder the capacity of startups to raise more money, if control rights are not properly specified in previous contracts. Problems of similar nature may arise such as in situations in which venture capitalists consider investing in startups that already have business angels as shareholders.

To conclude, this study discusses ongoing reform attempts in different countries and presents empirical evidence based on the European experience in permitting non-accredited investors access crowdfunding. While our analysis remains exploratory, it raises several questions in terms of facilitating crowdfunding. Moreover, our study contributes to the ongoing policy debate on how to regulate this market. This debate is motivated by the fear expressed by some regulators and academics that entrepreneurs may take advantage of the less sophisticated crowd, by strategically avoiding seeking capital from sophisticated investors (Hazen, 2012; Hildebrand, Puri and Rocholl, 2013; Griffin, 2014). We conclude that regulation may apply to the issuing firms, the crowd and the portals. The countries considered herein tend to adopt different approaches, by regulating the three actors differently. Doing so differently affects the level of investor protection of the crowd as well as the costs imposed on firms.

## REFERENCES

- Ahlers, G.K.C., Cumming, D., Günther, C. and Schweizer, D. (2013) 'Equity Crowdfunding', working paper. Available at: <http://ssrn.com/abstract=2362340>.
- Armour, J., Hansmann, H. and Kraakman, R. (2009) 'What is Corporate Law?', in: Kraakman et al. (eds) *The Anatomy of Corporate Law: A Comparative and Functional Approach*, 2<sup>nd</sup> Edition, Oxford: Oxford University Press.
- Assmann, H.-D., Schlitt, M. and von Kopp-Colomb, W. (2010) 'WpPG VerkProspG', 2<sup>nd</sup> Edition, Verlag Dr. Otto Schmidt.
- Bagley, C.E. and Dauchy, C.E. (2003) 'The Entrepreneur's Guide to Business Law', 3<sup>rd</sup> Edition, Thomson West.
- Braun, R., Eidenmüller, H., Engert, A. and Hornuf, L. (2013) 'Does Charter Competition Foster Entrepreneurship? A Difference-in-Difference Approach to European Company Law Reforms', *Journal of Common Market Studies* 51, 399-415.
- Collins, L. and Pierrakis, Y. (2012) 'The Venture Crowd - Crowdfunding Equity Investments into Business', NESTA Report. Available at: [http://www.ukbi.co.uk/media/Download%20Docs/The\\_Venture\\_Crowd\\_-\\_NESTA\\_-\\_2012.pdf](http://www.ukbi.co.uk/media/Download%20Docs/The_Venture_Crowd_-_NESTA_-_2012.pdf).
- Collins, L., Swart, R. and Zhang, B. (2013) 'The Rise of Future Finance: The UK Alternative Finance Benchmark Report'. Available at: [http://www.funginstitute.berkeley.edu/sites/default/files/The\\_Rise\\_of\\_Future\\_Finance.pdf](http://www.funginstitute.berkeley.edu/sites/default/files/The_Rise_of_Future_Finance.pdf).
- Cumming, D. and Johan, S. (2013) 'Demand Driven Securities Regulation: Evidence from Crowdfunding', *Venture Capital: An International Journal of Entrepreneurial Finance*, forthcoming.
- Financial Conduct Authority (2013) 'The FCA's Regulatory Approach to Crowdfunding (and Similar Activities)', Consultation Paper CP13/13. Available at: <http://www.fca.org.uk/your-fca/documents/consultation-papers/cp13-13>.
- Gompers, P. and Lerner, J. (2000) 'Money Chasing Deals? The Impact of Fund Inflows on Private Equity Valuation', *Journal of Financial Economics* 55, 281-325.
- Griffin, Z.J. (2014) 'Crowdfunding: Fleecing the American Masses', *Case Western Reserve Journal of Law, Technology & the Internet*, forthcoming.

- Hazen, T.L. (2012) ‘Crowdfunding or Fraudfunding? Social networks and the securities laws – Why the specially tailored exemption must be conditioned on meaningful disclosure’, *90 North Carolina Law Review*, 1735-1770.
- Hildebrand, T., Puri, M. and Rocholl, J. (2013) ‘Adverse Incentives in Crowdfunding’, working paper. Available at: <http://ssrn.com/abstract=1615483>.
- Hornuf, L. (2014) ‘Braucht Deutschland ein Crowdinvesting Gesetz?’, *VentureCapital Magazin*, forthcoming.
- Hornuf, L. and Schwienbacher, A. (2014) ‘Crowdinvesting – Angel Investing for the Masses?’, working paper. Available at: <http://ssrn.com/abstract=2401515>.
- Jensen, M.C. and Meckling, W.H. (1976) ‘Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure’, *Journal of Financial Economics* 3, 305-360.
- Klöhn, L. and Hornuf, L. (2012) ‘Crowdinvesting in Deutschland: Markt, Rechtslage und Regulierungsperspektiven’, *Journal of Banking Law and Banking* 24, 237-266.
- Knight, T.B., Leo, H. and Ohmer, A. (2012) ‘A Very Quiet Revolution: A Primer on Securities Crowdfunding and Title III of the JOBS Act’, *2 Michigan Journal of Private Equity & Venture Capital Law*, 135-153.
- La Porta, R., Lopez-de-Silanes, F. and Shleifer A. (2006) ‘What Works in Securities Laws?’ *Journal of Finance* 61, 1-32.
- La Porta, R., Lopez-de-Silanes, F., Shleifer A. and Vishny, R.W. (1997) ‘Legal Determinants of External Finance’, *Journal of Finance* 52, 1131-1150.
- La Porta, R., Lopez-de-Silanes, F. and Shleifer A. and Vishny, R.W. (1998) ‘Law and Finance’, *Journal of Political Economy* 106, 1113-1155.
- Mulherin, J.H. (2007) ‘Measuring the Costs and Benefits of Regulation: Conceptual Issues in Securities Markets’, *Journal of Corporate Finance* 13, 421-437.
- Olson, M. (1965) ‘The Logic of Collective Action: Public Goods and the Theory of Groups’, Cambridge, MA: Harvard Economic Studies.
- Saxenian, A. (2000) ‘Regional Advantage: Culture and Competition in Silicon Valley and Route 128’, Cambridge, MA: Harvard University Press.
- Weinstein, R.S. (2013) ‘Crowdfunding in the U.S. and Abroad: What to Expect When You’re Expecting’, *46 Cornell International Law Journal*, 427-453.
- Zingales, L. (2009) ‘The Future of Securities Regulation’, *Journal of Accounting Research* 47 (2), 391-426.

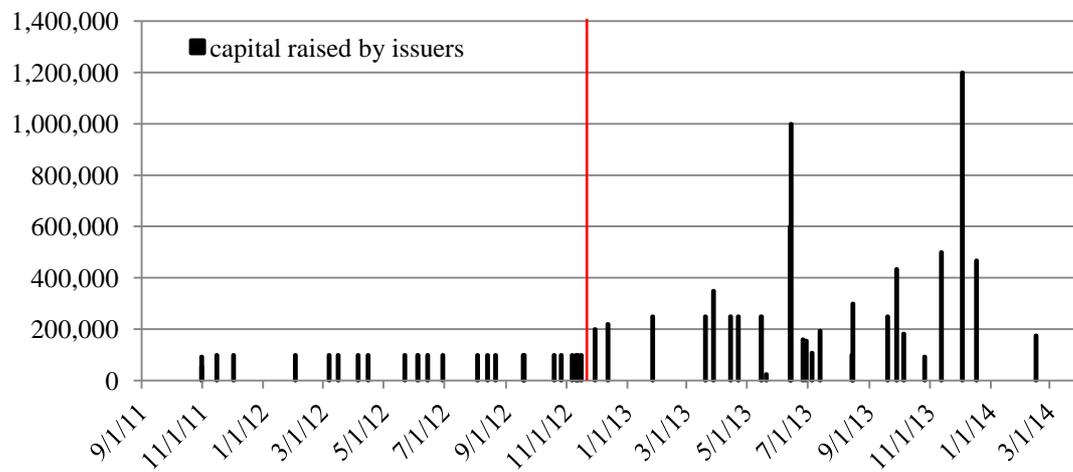
**Table 1**

Table 1 compares funding characteristics for the German crowdfunding portals Seedmatch, Companisto and Innovestment under the restricted setting when the exemptions under the German securities law apply (pre-partiarisches Darlehen) with the unrestricted setting when Seedmatch and Companisto circumvent the exemptions using a specific type of financial security (post-partiarisches Darlehen), which allows issuers to offer unlimited amounts without registering a prospectus with the securities regulator. Innovestment never changed its financial contract to circumvent the exemption threshold of the German securities law. The data cover the period from August 1, 2011, to March 7, 2014, and are hand-collected from the portal websites ([www.seedmatch.de](http://www.seedmatch.de), [www.companisto.com](http://www.companisto.com) and <http://innvestment.de>). Total assets were collected from the public register ([www.unternehmensregister.de](http://www.unternehmensregister.de)) as well as the Amadeus database as of 2011.

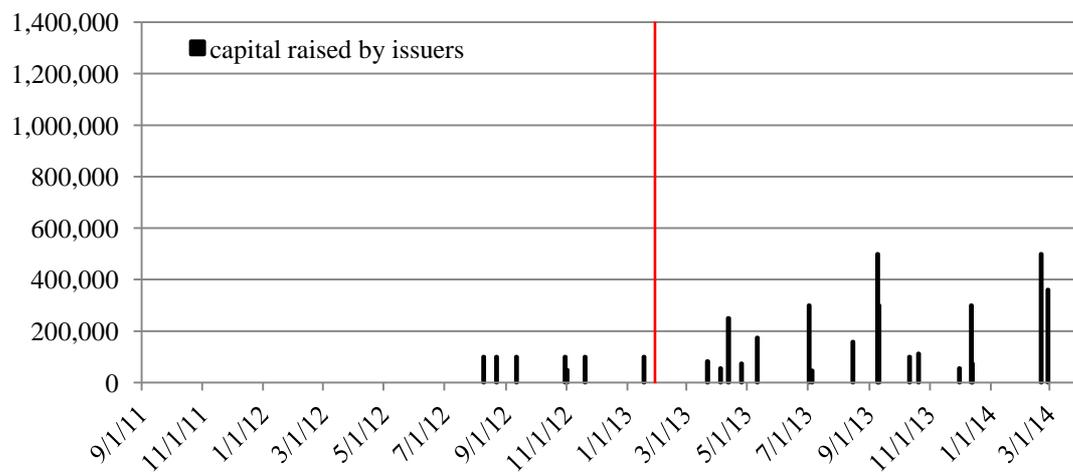
	Seedmatch		Companisto		Innovestment	
	pre <i>Partiarisches Darlehen</i>	post <i>Partiarisches Darlehen</i>	pre <i>Partiarisches Darlehen</i>	post <i>Partiarisches Darlehen</i>	never adopted <i>Partiarisches Darlehen</i>	period after Seedmatch adopted the <i>Partiarisches Darlehen</i>
Offering amount without a prospectus	restricted to €100,000	unrestricted	restricted to €100,000	unrestricted	restricted to €100,000	restricted to €100,000
Period during which this security type was offered	01.08.2011 15.11.2012	29.11.2012 today	07.06.2012 17.01.2013	04.02.2013 today	18.12.2011 today	29.11.2012 today
Successful offerings	26	24	8	16	28	13
Offerings that did not reach the minimum target amount	0	1	0	0	15	9
Pending insolvency proceedings	3	1	0	1	0	0
Average total funding amounts reached by successful offerings, median in parentheses	98,048 € (100,000 €) (n=26)	330,854 € (250,000 €) (n=25)	91,673 € (100,000 €) (n=8)	210,134 € (166,793 €) (n=16)	83,287 € (85,313 €) (n=43)	91,594 € (96,000 €) (n=23)
Average pre-money valuation of firms making a securities offer, median in parentheses	1,692,183 € (1,312,000 €) (n=26)	2,819,680 € (2,500,000 €) (n=25)	1,212,500 € (1,200,000 €) (n=8)	1,692,183 € (1,287,500 €) (n=16)	1,274,558 € (909,090 €) (n=43)	1,514,748 € (929,600 €) (n=23)
Average total assets of firms making a securities offer, median in parentheses	76,451 € (67,578 €) (n=18)	105,506 € (25,998 €) (n=9)	21,484 € (21,361 €) (n=4)	65,978 € (7,671 €) (n=6)	70,628 € (26,038 €) (n=16)	31,330 € (27,086 €) (n=5)
Average number of investors in successful offerings, median in parentheses	167 (172)	340 (280)	428 (418)	616 (523)	26 (19)	24 (16)
Average investment per investor in successful offerings	589 €	934 €	214 €	350 €	3,243 €	3,867 €
Minimum investment ticket	250 €	250 €	5 €	5 €	1,000 €	500 € to 25,000 €

**Figure 1**

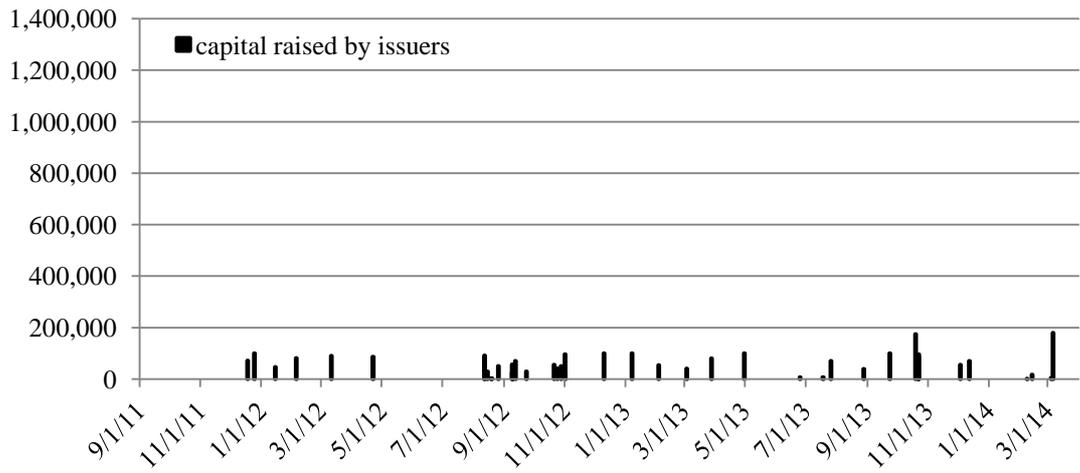
Figure 1 shows amounts raised in crowdfunding campaigns on Seedmatch (N=51), Companisto (N=24) and Innvestment (N=43) in the period from August 1, 2011, to March 7, 2014. The red lines separate the period before and after financial contracts were designed to circumvent the threshold of the small offering exemption as defined in the German securities law ( $T=€100,000$ ). Before financial contracts circumvented the threshold, the average amounts raised were €98,048 for Seedmatch campaigns and €91,673 for Companisto campaigns; thereafter, the amounts rose to €330,854 and €210,134 respectively. Innvestment never changed its financial contract to circumvent the threshold of the German securities law and exhibits an average funding amount of €83,287 per campaign.



Seedmatch



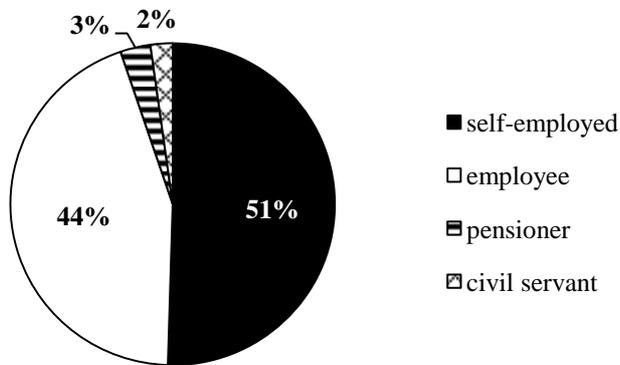
Companisto



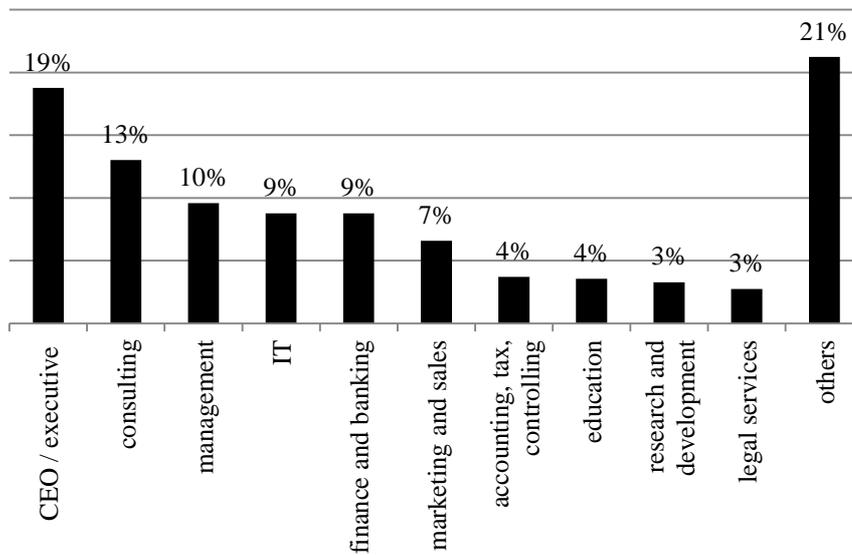
Innovestment

**Figure 2**

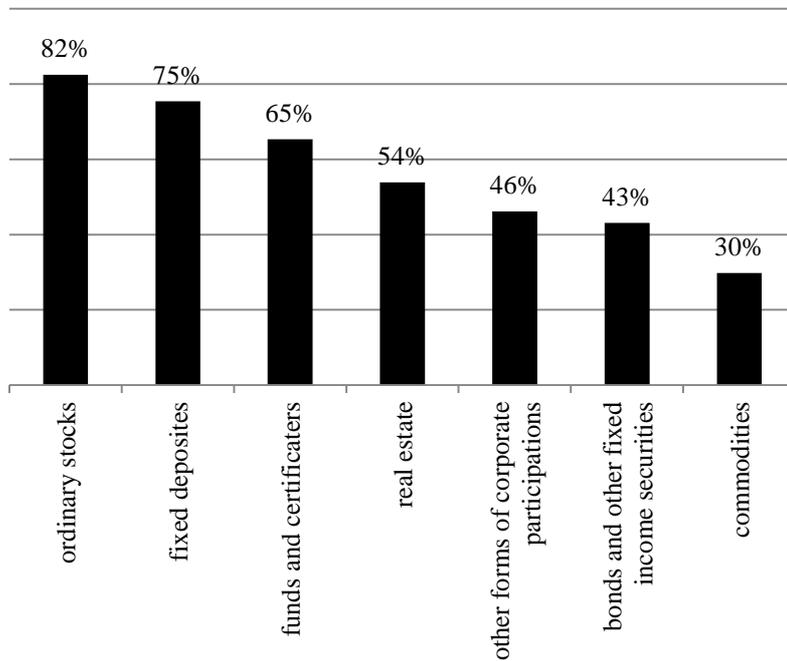
(a) Job-status of Innovestment users in 2012 (N=634)



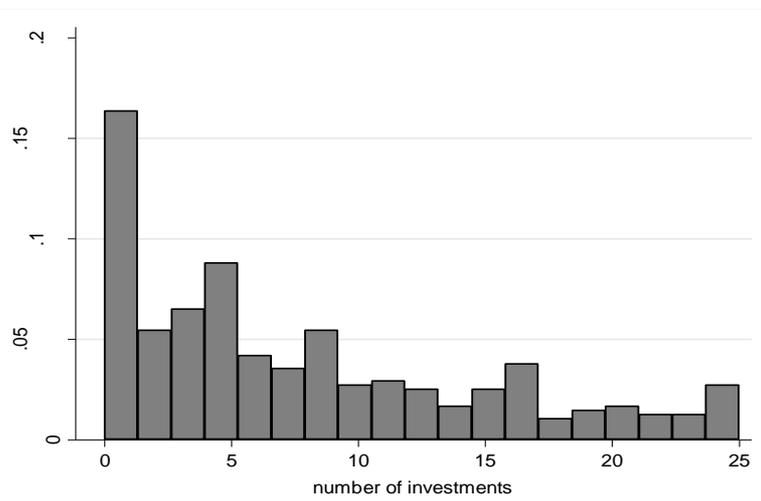
(b) Profession of Innovestment users in 2012 (N=747)



(c) Investment experience of Innovestment users in 2012 (N=557). The figure reports the asset classes with which Innovestment users had experience at the time of registration.



(d) Portfolio diversification of Companisto investors (N=363). The figure reports the density function for the number of investments financiers made with Companisto before investing in the campaign 'Schnuff & Co' in December 2013.



## APPENDIX 1: Crowdfunding based on Debt Securities

In this appendix, we show that the tradeoff and the resulting outcomes of Section 3 also hold qualitatively under debt finance. Under debt, we refer to debt-like securities such as participating notes and bonds. Some portals, however, offer corporate lending to the crowd, which does not involve securities. An example is Funding Circle operating in the UK and the US. We exclude such portals from our study because they are subject to different regulation than securities regulation.

To extend the model presented in Section 2 to debt securities issued to the crowd, we only need to add one ingredient: stochastic returns. In the case of equity, this was not essential, though it would have led to similar results (but with significant more notation). We assume that the ROI equals  $v > 0$ , with probability  $q$  only, and  $-wv$  otherwise. Let the parameter  $w$  be within the following range:  $0 \leq w \leq 1$ . This means that there is a probability  $(1 - q)$  that the firm will incur losses, in that revenues do not even cover reimbursement of the debt's principal. Then, the expected present value of any firm (absent of diversion) equals  $q(1 + v)\theta + (1 - q)(1 - wv)\theta$ .

The difference here with debt securities is that the entrepreneur (ENT) will only divert in the bad case (in which losses are incurred) because she does not expect any remaining value as shareholder; in the good case, the ENT will not divert any value because she is sole residual claimant (i.e., the ENT receives the entire surplus after having paid the crowd). Indeed, any diversion leads to value losses for the ENT, because the resulting inefficiency would then be entirely incurred by him or her. The latter case differs from equity, in which the ENT shares the surplus with the crowd under all possible outcomes. Therefore, under equity finance, the ENT has incentives to divert value, regardless of whether the good (with prob.  $q$ ) or bad (with prob.  $(1 - q)$ ) case applies.

Without registration, the debt contract will be as follows:

The ENT expects  $q((1 + v)\theta - D) + (1 - q)(1 - x)\delta(1 - wv)\theta$  subject to  
$$\theta = qD + (1 - q)(1 - \delta)(1 - wv)\theta.$$

Thus,  $D = [\theta - (1 - q)(1 - \delta)(1 - wv)\theta] / q$ , so that the ENT's expected profits are  
$$q(1 + v)\theta + (1 - q)(1 - x\delta)(1 - wv)\theta - \theta.$$

With registration, the ENT's expected profits equal

$$q((1 + v)\theta - D) + (1 - q)(0) - C \quad \text{subject to}$$

$$\theta = qD + (1 - q)(1 - wv)\theta.$$

Thus, in equilibrium,  $D = [\theta - (1 - q)(1 - wv)\theta] / q$ , and the ENT's expected profits are  $v\theta(q - w + qw) - C$ .

Thus, registration is optimal for the ENT whenever

$$v\theta(q - w + qw) - C > q(1 + v)\theta + (1 - q)(1 - x\delta)(1 - wv)\theta - \theta.$$

Simplifying the condition yields  $x\delta(1 - q)(1 - wv)\theta > C$ .

Let us again solve the two possible cases, as done in Section 3.

Case #1: Firms with  $\tilde{\theta} \leq T$ :

These firms will not comply, and thus the ENT's expected profits are

$$q(1 + v)\theta + (1 - q)(1 - x\delta)(1 - wv)\theta - \theta.$$

Case #2: Firms with  $\tilde{\theta} > T$ :

These firms will register if the compliance costs are lower than the costs related to the distortion in the amount of capital raised, because now avoiding regulation limits fund-raising at the threshold  $T$ ; that is,

$$[q(1 + v) - 1](\theta - T) + (1 - q)(1 - wv)[\theta - (1 - x\delta)T] > C .$$

Thus, we obtain qualitatively similar results to those for equity, with the same three groups of firms as in Section 3: firms with  $\tilde{\theta} \leq T$  that remain unregulated, firms with  $\tilde{\theta} > T$  that only raise the amount  $T$  to avoid complying, and firms with  $\tilde{\theta} > T$  that fully comply.