

# Northwestern Journal of International Law & Business

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Volume 29

Issue 3 *Summer*

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Summer 2009

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### Recommended Citation

Douglas Cumming, Andrej Gill, Uwe Walz, International Private Equity Valuation and Disclosure, 29 Nw. J. Int'l L. & Bus. 617 (2009)

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# International Private Equity Valuation and Disclosure

*Douglas Cumming, Andrej Gill & Uwe Walz\**

## I. INTRODUCTION

Private equity (PE) firms are financial intermediaries standing between the portfolio firms and their investors. They are typically organized as closed-end funds aiming to overcome informational asymmetries and to exploit specialization gains in selecting and overseeing portfolio firms.<sup>1</sup> However, their existence as financial intermediaries creates new informational asymmetries (with respect to the investors in the PE funds). Fund managers raise follow-on funds before exiting their investments, and may have incentives to overvalue their as-yet-unsold investments when making disclosures to institutional investors. Despite strong incentives to overvalue, PE funds do not face mandatory disclosure rules in any country with a significant PE industry.<sup>2</sup> Yet the overvaluation of unexited PE investments has the potential to distort capital allocations to the PE industry generally, and across PE funds in different countries around the world. Disclosure of performance to the investor is burdened by two main difficulties. On the one hand, valuation requires sufficient information on the performance of the firm; on the other hand, even if sufficient information is available, PE firms may disclose information strategically. The main aim of this Article is to discuss these two issues in detail.

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<sup>1</sup> See William A. Sahlman, *The Structure and Governance of Venture Capital Organizations*, 27 J. FIN. ECON. 473 (1990).

<sup>2</sup> See generally DAVID WALKER, DISCLOSURE AND TRANSPARENCY IN PRIVATE EQUITY: CONSULTATION DOCUMENT JULY 2007 (2007).

Disclosure takes place against the background of some decisive features of the industry. The business of PE and most notably that of venture capital funds is based on investments in highly uncertain ventures.<sup>3</sup> These investments are illiquid because investment in the partnership may be required to last for as long as ten years, so selling and buying takes place on an irregular basis.<sup>4</sup> Furthermore, in contrast to public equity markets there is little regulation in the PE industry.<sup>5</sup>

The relative importance of the valuation and disclosure topics, especially between the PE fund (the general partner (GP)) and the investors (the limited partners (LPs)) follows the developments in the industry in a countercyclical manner. This was especially pertinent during the market slides in the aftermath of the 2000 Internet boom. In such phases, investors are more sensitive with regard to the valuation of the assets held by PE firms and are seeking more information with respect to any possible write-downs.

Given the illiquidity of the investment, current investors want to be informed of the value of their investment. One reason for this is that the investors, being either pension funds or other institutional investors, often face disclosure requests as well.<sup>6</sup> This conflict of interest between the PE fund's desire for opaqueness and the investor's request for more transparency and disclosure of information relating to performance became most obvious in the course of the lawsuit against the Californian pension fund CalPERS.<sup>7</sup> In this lawsuit, CalPERS was forced by its stakeholders and the outside public to disclose performance information on its investments in various PE funds.<sup>8</sup> Subsequently, a number of PE funds turned down CalPERS when it was willing to invest in said funds.<sup>9</sup>

The valuation of investments is crucial not only for LPs currently engaged in the PE fund but also for potential future investors considering investing in the PE firm's follow-up funds. Hence, the decisive questions

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<sup>3</sup> In the following, we use the term "private equity" in its broad definition embracing seed, early-stage, and expansion financing (to which we refer to as venture capital) as well as late-stage investments (buy-outs). Thereby, we follow the definition of, e.g., the European Venture Capital Association.

<sup>4</sup> Douglas J. Cumming & Sofia A. Johan, *Regulatory Harmonization and the Development of Private Equity Markets*, 31 J. BANKING & FIN. 3218, 3222 (2007).

<sup>5</sup> *Id.* at 3219; John R.M. Hand, *The Value Relevance of Financial Statements in the Venture Capital Market*, 80 ACCT. REV. 613, 618 (2005).

<sup>6</sup> Cumming & Johan, *supra* note 4, at 3222.

<sup>7</sup> See Susan Chaplinsky, *CalPERS vs. Mercury News: Disclosure Comes to Private Equity*, (U. Va. Darden Graduate Sch. of Bus. Admin., Case and Teaching Paper Series No. UVA-F-1438, 2004), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=909754](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=909754).

<sup>8</sup> *Id.* at 2.

<sup>9</sup> *Id.* at 4.

are: What are the incentives for individual PE funds to truthfully report to their investors and to what extent are existing industry guidelines helpful? Is regulatory intervention necessary and potentially helpful? Can we observe strategic misreporting, and if so, in which circumstances is it more likely?

This Article will address these questions and provide an overview of links between the valuation and disclosure issue in the PE industry (i.e., from the portfolio firm to the fund as well as between the PE fund and the investors). Our main focus will be, however, on the valuation of unrealized investments and GP's disclosure of this information to LPs. We will analyze this against the background of theoretical arguments for and against truthful disclosure as well as recent empirical evidence. Furthermore, we will provide an overview of the institutional set-up as well as topical developments in the countries with large PE markets. Last but not least, we relate the accuracy of financial reporting of non-listed portfolio firms to the valuation and disclosure of performance information from the PE fund to investors. Throughout our entire discussion we focus only on disclosure of performance-related information and neglect discussing other investment related issues such as corporate governance, strategic job creation, or destruction.<sup>10</sup>

In order to stress the main issues even more clearly, it is helpful to compare PE funds with mutual funds and hedge funds. Mutual funds and hedge funds both invest in highly liquid assets.<sup>11</sup> While mutual funds pool the capital of small investors, hedge funds attract a very limited number of wealthy investors.<sup>12</sup> Therefore, whereas there is a need to protect small investors in mutual funds via regulation, such investor protection is not regarded as an important issue with hedge funds. In contrast, PE funds pool the money of their LPs (typically a small number of wealthy investors) and invest it in highly illiquid assets. Hence, there is definitively less need to protect small investors in the PE fund than in the mutual fund industry. Nevertheless, there might be a reason to increase transparency.

This Article is structured as follows. First, in Section II, we provide an overview of the institutional set-up and recently developed guidelines and standards in the PE industry. In Section III, we will discuss the main conflicts of interest standing against a voluntary and truthful disclosure of financial information. We discuss circumstances where the valuation and disclosure issues can be more properly approached by voluntary disclosure. Furthermore, we discuss the costs and benefits of industry standards and regulation in Section IV. In Section V, we briefly look into recent

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<sup>10</sup> See generally WALKER, *supra* note 2.

<sup>11</sup> See William Fung & David A. Hsieh, *A Primer on Hedge Funds*, 6 J. EMPIRICAL FIN. 309 (1999).

<sup>12</sup> *Id.*

empirical evidence on financial reporting and disclosure for unlisted companies. Thereby, we ask how PE and venture capital involvement affects the disclosure behavior of management in these firms. As a final step, we discuss empirical evidence of the degree of potential misreporting by the PE firms to their current investors. Lastly, Section VI summarizes the main issues and concludes with the main implications of our analysis and points to potential avenues for future research.

## II. INSTITUTIONAL SET-UP

### A. Valuation and Disclosure Rules for Privately-Held (Portfolio) Firms

PE funds are financial intermediaries channeling capital from their investors to portfolio firms (see Figure 1 for a detailed illustration). Hence, an obvious source for the disclosure of information of PE funds towards their LPs is the information revealed by portfolio firms towards their investors in general, and the PE firm in particular. Portfolio firms of PE firms are typically not listed.<sup>13</sup> While publicly-traded firms face rather rigid financial reporting standards across the world, this is at least in part significantly different for privately-held portfolio firms even if they have limited liability status.

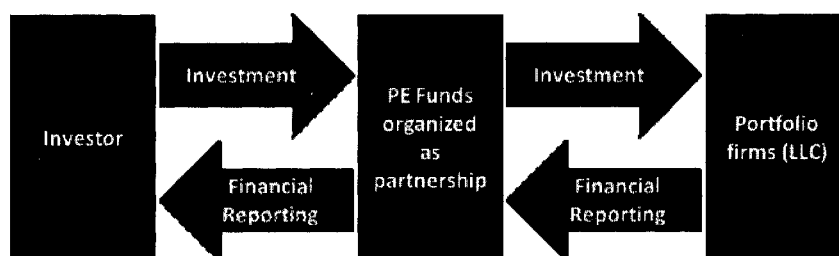


FIGURE 1: This figure shows how the information/investment-flows look in a PE-environment.

In order to evaluate the degree of financial reporting and disclosure of the portfolio firms of PE funds, we will provide a brief overview of the financial reporting and disclosure rules applicable for privately-held firms in the United States and the European Union.

In the United States, there are no mandatory financial reporting rules

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<sup>13</sup> Exceptions to this are cases where the PE funds have either invested in the course of a buy-out in publicly listed firms, or the PE funds do not sell all of their shares in the course of an IPO.

for privately-held firms.<sup>14</sup> While firms are therefore, in principal, free to choose how and on which grounds they want to provide financial reporting, most of them rely at least to some extent on the guiding principles of U.S. Generally Accepted Accounting Principles (GAAP).<sup>15</sup> The fact that they to some extent voluntarily adhere to the existing U.S. GAAP guidelines is mainly due to two factors.

The first underlying reason is the often-discussed effect of voluntary disclosure on capital costs and the availability of capital, especially corporate bonds and bank credit.<sup>16</sup> Firms need to create reports because their outside creditors demand financial statements. To issue new credit, banks need to make sure the firms can repay their loans. Most creditors demand a financial statement that is audited by a certified public accountant (CPA). The CPA attests that the firm's financial statements conform to GAAP.<sup>17</sup> A related matter is the desire to attract new financiers who provide equity. In order to do so, even privately-held firms which do not directly rely on the public equity markets need to reveal their profitability to potential future investors. Secondly and relatedly, firms which are willing to go public in the near future (thereby gaining access to public equity) are required to hold financial statements which are U.S. GAAP consistent for at least the last five years.<sup>18</sup> As a huge number of PE deals are exited via an IPO, this may be an especially crucial motivation to PE funds to provide sound financial statements. In a nutshell, this implies that a significant number of privately held firms in the United States provide financial statements which adhere to an extent with U.S. GAAP. Given the strong position of PE investors, PE firms should be able to extract such financial statements from their portfolio firms, forming the base for valuation of portfolio firms and their disclosure. This ability to force portfolio firms to reveal financial information is supported by Delaware Corporation law, which entitles members of close corporations to substantial information.<sup>19</sup>

In the European Union, the Fourth Council Directive can be interpreted as providing a lower bound for the reporting of non-listed companies with limited liability in the European Union: "The annual

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<sup>14</sup> JOSEPH A. MCCAHERY & ERIC P.M. VERMEULEN, *CORPORATE GOVERNANCE OF NON-LISTED COMPANIES* 43 (2008).

<sup>15</sup> *Id.*

<sup>16</sup> Michael Welker, *Disclosure Policy, Information Asymmetry, and Liquidity in Equity Markets*, 11 CONT. ACCT. RES. 801 (1995) (discussing empirical analysis on this effect for publicly traded firms). See also Paul Healy, Amy Hutton & Krishna Palepu, *Stock Performance and Intermediation Changes Surrounding Increases in Disclosure*, 16 CONT. ACCT. RES. 485 (1999).

<sup>17</sup> O. RAY WHITTINGTON, *WILEY CPA EXAMINATION REVIEW FAST TRACK STUDY GUIDE* 3 (4th ed. 2008).

<sup>18</sup> Hand, *supra* note 5, at 623.

<sup>19</sup> MCCAHERY & VERMEULEN, *supra* note 14, at 43.

accounts shall comprise the balance sheet, the profit and loss account and the notes on the accounts. These documents shall constitute a composite whole.”<sup>20</sup> Hence, there is a minimum standard in the European Union thereby differentiating the reporting requirements from their counterparts in the United States, as they are based on a binding legal requirement and not on voluntary disclosure, or an agreement between a company and its investors/funds.<sup>21</sup> In contrast, however, to U.S. GAAP which is based on the notion of fair value and going concern, the European legal standards rely on the notion of debtor protection. These European legal standards are in contrast to the recently created industry-set standards, the International Financial Reporting Standards (IFRS), which are adopted by especially large and listed firms.

On top of that, EU-based firms also need to disclose their financial statements to the general public,<sup>22</sup> although state laws may provide exceptions to this: “The laws of a member state may, however, permit the annual report not to be published as stipulated above. It must be possible to obtain a copy of all or part of any such report free of charge upon request.”<sup>23</sup>

This does not practically differentiate the European way from that of the United States. In the United States, the pressure to reveal the earnings is simply applied from private organizations or companies instead of legal requirements.<sup>24</sup>

Overall, our discussion reveals that PE managers should have access to sound financial data of their portfolio firms which, however, only depict developments from the past rather than prediction for the future. Especially for young and fast-growing firms, there is a big difference between the two. Financial reports of portfolio firms limit the leeway of portfolio managers when it comes to valuation. As a consequence, we should expect that the quality of reporting standards in depicting fair value of the firm from a going-concern perspective should appear in the valuation of PE firms vis-à-vis their LPs.

#### **B. Valuation and Disclosure Guidelines for Private Equity Funds**

Valuation within the PE industry has always been a difficult task and this is especially so for venture capital firms.<sup>25</sup> Disclosure of (financial)

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<sup>20</sup> Fourth Council Directive 78/660, art. 2, para. 1, 1978 O.J. (L 222) 11 (EU).

<sup>21</sup> MCCAHERY & VERMEULEN, *supra* note 14, at 37–38.

<sup>22</sup> Directive 2006/46, art. 1, 2006 O.J. (L 224) 1, 5 (EU).

<sup>23</sup> Fourth Council Directive, *supra* note 20, art. 47.

<sup>24</sup> Paul M. Healy & Krishna G. Palepu, *Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature*, 31 J. ACCT. & ECON. 405, 409–10 (2001).

<sup>25</sup> JOSH LERNER, FELDA HARDYMON & ANN LEAMON, VENTURE CAPITAL & PRIVATE

information and the valuation of (un-) realized investments in the PE industry, whose companies are typically organized as partnerships, have not been formally regulated around the world despite some recent discussion to do so.<sup>26</sup> However, a number of industry guidelines have been proposed by various committees and bodies in the recent past in order to diminish the public perception of opacity within the industry and to avoid regulatory moves. The main developments are outlined subsequently.

The first self-regulatory effort can be traced back to the National Venture Capital Associations' (NVCA) attempt in 1990 to propose guidelines for consistent valuations in the industry.<sup>27</sup> The British Venture Capital Association (BVCA) as well as the European Venture Capital Organization (EVCA) followed suit in the early 1990s, proposing guidelines for valuations and their disclosure from the GPs to the LPs of PE funds. The basic notion in all of these guidelines was that the GP is better informed and is therefore in charge of valuing portfolio companies. Furthermore, the early valuation principle strongly relied on the idea of valuation at the price of the most recent investment. This could either imply a valuation at the cost of investment or, in cases in which further investment rounds by other informed outside investors (other PE investors) had taken place, using the price being paid in the last investment round.

In the aftermath of these first attempts towards the establishment of formally non-binding industry guidelines, further versions of these guidelines were published in order to further their development. These new versions, especially the ones of the BVCA and the EVCA, moved in the direction of "Fair Value" reporting.<sup>28</sup> They were therefore mainly concerned with the problem that, in a downward market, valuation at cost prevents the need to write down the valuations in the PE's portfolio.<sup>29</sup>

After many previously published guidelines in 1991, 1993, and 2001, the International Private Equity and Venture Capital Valuation Guidelines (IPEV Guidelines), which form the joint guidelines of many regional industry groups (except the NVCA), were published in their current version

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EQUITY: A CASEBOOK 9 (4th ed. 2008).

<sup>26</sup> This discussion is most advanced in the United Kingdom; there, however, the discussion is focused on disclosure rules in general and is also very much centered around tax issues and less on increasing the informational content of performance disclosure. See generally WALKER, *supra* note 2.

<sup>27</sup> Felda G. Hardyman, Josh Lerner & Ann Leamon, *Between a Rock and a Hard Place: Valuation and Distribution in Private Equity* (HBS Publishing Case No. 9-803-161; Teaching Note No. 9-805-049) (Feb. 25, 2003), available at <http://ssrn.com/abstract=954266>.

<sup>28</sup> See INTERNATIONAL PRIVATE EQUITY AND VENTURE CAPITAL VALUATION GUIDELINES (2006), [http://www.privateequityvaluation.com/documents/International\\_PE\\_VC\\_Valuation\\_Guidelines\\_Oct\\_2006.pdf](http://www.privateequityvaluation.com/documents/International_PE_VC_Valuation_Guidelines_Oct_2006.pdf) [hereinafter IPEV GUIDELINES].

<sup>29</sup> *Id.*



in October 2006.<sup>30</sup> The goal was to ensure that the need for greater comparability across the industry is covered and the alignment of reporting standards between U.S. GAAP and International Financial Reporting Standards is fulfilled.<sup>31</sup> Throughout these recommended guidelines, the reporting quality seems to have increased.<sup>32</sup> In addition, their official acceptance in the industry increased. In their study, the European Investment Fund (EIF) asked the funds in its portfolio if they comply with the new IPEV guidelines.<sup>33</sup> Nearly eighty percent responded that they will adopt the new guidelines.<sup>34</sup> The authors also tested for the degree of compliance and the impact of the new guidelines on valuations of PE funds.<sup>35</sup> Their findings suggest a positive relationship between following the guidelines and the reported IRR.<sup>36</sup> However, this needs to be handled with caution due to sample selection biases and time effects which are not taken into account.

There are currently two types of relevant valuation guidelines in the PE industry, both of which follow the same principles (see Table 1, *infra*, for a comparison). Overall reporting and disclosure standards complement these valuation guidelines.<sup>37</sup> It therefore suffices to discuss in more detail the IPEV guidelines proposed by a large number of regional industry associations.<sup>38</sup> The key principle behind these guidelines is to apply methods that aim to determine fair value.<sup>39</sup> In order to do so, a number of different valuation methods are proposed. Valuation can either rely on (1) Price of Recent Investment; (2) Earnings Multiple; (3) Net Assets; (4) Discounted Cash Flows or Earnings of underlying business; (5) Discounted Cash Flows from the investment; and (6) Industry Valuation Benchmarks.<sup>40</sup> To select the appropriate methodology “[t]he valuer should exercise his or her judgment to select the valuation methodology that is most appropriate. . . .”<sup>41</sup> Over time “[m]ethodologies should be applied consistently from period to period, except where a change would result in

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<sup>30</sup> *Id.*

<sup>31</sup> *Id.* at 7.

<sup>32</sup> Pierre-Yves Mathonet & Gauthier Monjanel, *Valuation Guidelines for Private Equity and Venture Capital Funds: A Survey*, 9 J. ALT. INV. 59, 59 (2006).

<sup>33</sup> *Id.*

<sup>34</sup> *Id.* at 60.

<sup>35</sup> *Id.* at 67.

<sup>36</sup> *Id.* at 67.

<sup>37</sup> See, e.g., EVCA, CORPORATE GOVERNANCE AND PROFESSIONAL STANDARDS FOR THE PRIVATE EQUITY AND VENTURE CAPITAL INDUSTRY (2005).

<sup>38</sup> See IPEV GUIDELINES, *supra* note 28.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.* at 14.

<sup>41</sup> *Id.* at 13.

better estimates of Fair Value.”<sup>42</sup> For all different methodologies, detailed rules are developed on how to use and/or adopt the different methods.<sup>43</sup> This gives significant leeway to the GP.

A brief discussion of the main methods of determining fair value and their inherent difficulties provides insight.<sup>44</sup> First, when using the price of the recent investment, the fact that different rights are attached to the new and existing investments matters for determining the price. Significant uncertainties are associated with assessing the economic value of these rights, which opens up room for subjective judgment. With earnings multiples it is suggested that “comparable” multiples be used while taking into account that earnings multiples are adjusted for differences between the comparator and the company valued (e.g., for risk and growth prospects).<sup>45</sup> It is therefore not only the choice of the “comparable” company but also the way adjustments are undertaken that leaves substantial room for interpretation. Method three, valuing net assets, requires one to take into account that a substantial degree of the assets of portfolio firms consists of intangible assets which easily distort this valuation principle. Using discounted cash flow methods is without doubt theoretically sound.<sup>46</sup> However, choosing the proper input data is inherently difficult, especially for the portfolio companies under consideration. Given the high degree of uncertainty in the environment under discussion, this method is very sensitive to discount and terminal growth assumptions. Using industry benchmark principles would mean that the same difficulties apply as with comparable multiples. Thus, there is obviously the danger that all the methods could, under the given circumstances, give rise to any desired valuation.

Table 1 provides a short comparison of the main differences as well as common features of the IPEV and the NVCA valuation guidelines.

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<sup>42</sup> *Id.* at 14.

<sup>43</sup> *Id.* at 25–26.

<sup>44</sup> See Hardyman et al., *supra* note 27 (providing a more extensive discussion of some of these methods, most notably of methods 1, 4, and 6).

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

TABLE 1: COMPARISON OF NVCA AND IPEV GUIDELINES

This table provides an overview on the differences and similarities of the NVCA and the IPEV reporting guidelines; most importantly in issues like frequency and methods.<sup>47</sup>

	<b>NVCA</b>	<b>IPEV</b>
General Objective	Fair Value	Fair Value
General Disclosure	Yes	Yes
Frequency of Reporting	Quarterly basis	Periodic
Methods	<ul style="list-style-type: none"> <li>•Cost/latest round of financing</li> <li>•Performance multiple</li> <li>•DCF (only in limited situations)</li> <li>•Net assets valuation</li> <li>•Industry-specific benchmarks</li> </ul>	<ul style="list-style-type: none"> <li>•Price of recent investment</li> <li>•Earnings multiple</li> <li>•Net assets</li> <li>•DCF</li> <li>•Industry valuation benchmarks</li> </ul>
Consistency over Time	Be consistent until a new methodology provides a better approximation of the investment's current Fair Value.	Methodologies should be applied consistently from period to period, except where a change would result in better estimates of Fair Value.
Type of Information	Valuation	Valuation

### C. Brief Evaluation of Valuation Guidelines

Valuation of PE investments is inherently based on forward-looking estimates and decisions with respect to market conditions and the underlying business itself. The problem is that a public market, which is crucial in translating information into proper valuations, might exist only rudimentarily or not at all. The question therefore centers on the extent to which the industry guidelines help provide truthful reporting of PE funds towards their investors. Two matters are worth noting. First, the reporting guidelines, by stressing the need to apply consistent methods over time, improve the comparability of data provided inter-temporally. Any deviation from a given method must be explained and justified. In addition, providing guidelines to the entire industry increases the level of transparency by allowing comparisons across PE funds. If, for example, most PE funds use multiples of five in a given industry, it becomes significantly more difficult for a PE fund to permanently justify a multiple of eight in the very same industry. Second, despite the entire set of

<sup>47</sup> IPEV GUIDELINES, *supra* note 28.

principles and guidelines (and even if properly applied), there is significant room to maneuver for the PE managers. This is especially true of venture capital investments and their high degree of uncertainty. Therefore, there remains plenty of room for PE funds to willingly misinform their LPs.

Two questions remain. First, is sticking to valuation at cost rather than at Fair Value an alternative that can overcome the potential problems associated with fair value reporting? Valuation at cost certainly does not overcome one of the most often observed sources of over-reporting (see our next section), namely, the lack of write-downs in market downturns. Further, the potential remains for providing less than adequate information to the investor. Given that the LPs receive information about cash flowing into the company, they may use this as an indicator of cost valuations on their own. The second question, namely whether there are any other possibilities to mitigate this problem, is left to our final discussion.

### III. MAIN PROBLEMS AND CONFLICTS OF INTEREST

A number of public institutional investors in the United States came under legal pressure in the second half of 2002 to disclose the performance of PE and venture capital funds in which they had invested.<sup>48</sup> For instance, the Californian pension fund CalPERS lost its case and published IRR data for its investments in the PE industry on its website.<sup>49</sup> In the aftermath, a number of PE funds decided to restrict access to funds for certain publicly accountable investors.<sup>50</sup>

This incident highlights potential conflicts of interest arising between investors (LPs) and PE funds (GPs). Whereas investors, especially if publicly accountable, are interested in more transparent disclosure rules and policies, PE firms consider this as a threat to their business model, which is focused on illiquid investments and discontinuous trading, and hence valuation.

There is not only a conflict of interest between investors and PE firms as to whether performance data should be disclosed, but also as to how firms and investments should be valued. Obviously, with exited investments the measurement of performance is relatively straightforward (if one neglects all the issues associated with the IRR measure).<sup>51</sup> With un-

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<sup>48</sup> *Industry Snapshot*, EVCA BAROMETER, May 2003, at 1.

<sup>49</sup> Chaplinsky, *supra* note 7, at 3.

<sup>50</sup> *Id.* at 4.

<sup>51</sup> See Douglas Cumming & Uwe Walz, *Private Equity Returns and Disclosure Around the World*, J. INT'L BUS. STUD. (forthcoming 2009), available at <http://ssrn.com/abstract=514105> (presented at EFA 2004). For subsequent consistent evidence, see also Ludovic Phalippou & Mario Zullo, *Performance of Private Equity Funds: Another Puzzle?* (EFA 2005 Moscow Meetings Working Paper), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=473221](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=473221). For follow-up, more recent work that is likewise

exited investments, valuation is far less straightforward and hinges to a large extent on the discretionary power of the PE manager.<sup>52</sup> Many PE firms have valued their companies at the higher of cost (as given by the most recent investment) or market value as determined by the most recent outsider-led financing round.<sup>53</sup> With rising valuation during the time of investment this valuation policy leads to positive surprises at the time of exit. With falling firm values the degree and speed of write-downs becomes crucial. Besides reflecting overly-optimistic portfolio values (with the associated signaling effect on potential investors as discussed below), this might also have an effect on the compensation scheme of PE managers and thus, in turn, might affect their incentives to undertake write-downs or delay them into the future. The two major sources of the GPs' income are the performance-independent management fee and the carried-interest which allow the GPs to participate in superior performance. However, if unexited investments are overvalued (e.g., kept at costs while their true value would have required a write-down below costs) realizations of superior performance with exited investments may potentially lead to excess distributions. The GPs then receive a larger share of total accumulated excess returns than what they should have received based on the true value of the portfolio. So-called claw-back distributions, by which the GP is required to pay back excess distributions, do compensate for this. But in order for this to be effective, claw-back requires that the money still be available and not depleted for private purpose. In the latter case, claw-back provisions become ineffective. Hence, this creates potential conflicts of interest between the PE managers and their investors.

Over-reporting is also not in the interest of institutional investors such as CalPERS which are themselves forced to report to their investors since this may lead to sudden changes in portfolio value which are difficult to "sell" to third parties.

Further conflicts of interest arise due to inter-organizational structure in the PE firms which are not homogenous entities.<sup>54</sup> For instance, they might stem from internal promotion schemes in the PE organization as well as from long-term involvement of particular managers with the firm. These

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consistent with this evidence, see, e.g., Florencio Lopez de Silanes & Ludovic Phalippou, *Private Equity Investments: Performance and Diseconomies of Scale* (U. Amsterdam and INSEAD Working Paper, 2008), available at <http://ssrn.com/abstract=1344298>.

<sup>52</sup> See, e.g., Can Kut, Bengt Pramborg & Jan Smolarski, *Managing Financial Risk and Uncertainty: The Case of Venture Capital and Buy-Out Funds*, 26 GLOBAL BUS. & ORG. EXCELLENCE 2, 53 (2007); see also Mike Wright, Sarika Pruthi & Andy Lockett, *International Venture Capital Research: From Cross-Country Comparisons to Crossing Borders*, 7 INTL J. MGMT REV. 7, 135 (2005), available at <http://www.nottingham.ac.uk/business/cmbor/working/200506b.pdf>.

<sup>53</sup> See Hardymon et al., *supra* note 27, at 2.

<sup>54</sup> *Id.*

conflicts then reduce the incentives to truthfully report a reduction in the value of particular portfolio firms.

But even if drops in firm value are neglected, there are significant problems associated with valuations at cost or market value. If in new financing rounds new outside investors join the investment syndicate, it is highly unlikely that this will come as a plain investment that demands cash flow rights in return for capital infusions only. Rather, new investors typically demand new or additional control and decision rights.<sup>55</sup> It therefore becomes difficult to compare different series of equities (with different decision and control rights) and to monetize the inherent value of the decision and control rights. As indicated above such issues are reflected in industry guidelines as well.

Another primary source of conflicts of interests arises between PE funds and potential future investors (LPs). The main asset of PE managers is their track-record. First-time PE managers in particular cannot rely on the past performance of successful PE funds. Instead, they have to rely on the performance of their current fund. Negative performance of the current fund is a negative signal, which makes the closing of future funds more difficult. These mechanisms increase incentives for first-time PE managers to over-report the valuations of unexited investments. This is especially true for PE managers who are under pressure to fund a follow-on fund and who lack the track record of completely dissolved funds; the conflict of interest with respect to a reporting of a “fair and true” value of the unexited portfolio firms is obviously most pronounced in this case (see also our discussion below).

#### IV. INCENTIVES FOR VOLUNTARY DISCLOSURE VERSUS MANDATORY DISCLOSURE

If there are sufficient incentives to induce proper, voluntary disclosure of performance measures and valuations, the above mentioned problems could be resolved via the market place without any interference through either standard/guideline setting or regulation.<sup>56</sup> In order to shed light on whether sufficient incentives exist in the PE market and the PE industry, the

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<sup>55</sup> See DOUGLAS J. CUMMING & SOFIA A. JOHAN, *VENTURE CAPITAL AND PRIVATE EQUITY CONTRACTING: AN INTERNATIONAL PERSPECTIVE* (2009); Carsten Bienz & Uwe Walz, *Venture Capital Exit Rights* (LSE Working Paper, 2007); Douglas J. Cumming & Sofia A. Johan, *Preplanned Exit Strategies in Venture Capital*, 52 EUR. ECON. REV. 1209 (2008), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=918979#](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=918979#); Steven N. Kaplan & Per Stromberg, *Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts*, 70 REV. ECON. STUD. 281 (2003).

<sup>56</sup> See generally Christian Leuz & Peter Wysocki, *Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research* (Working Paper, 2008), available at <http://ssrn.com/abstract=1105398>.

following Section discusses incentives and potential mechanisms implying that potential benefits exceed the voluntary costs of disclosure.

We proceed in three steps. First, we address the factors that affect the degree and quality of the firm's disclosure to the PE fund. In order to be able to disclose and report proper valuation to the investors, PE managers need to be accurately informed as to the economic value of their portfolio firms. PE firms are by no means uninformed outside investors in their portfolio firms. This view contrasts—at least to some extent—with comments of PE representatives. A representative stated that, “[v]aluation of private, venture backed company's stock is a process which at best is costly, complex and inexact. Absent new rounds of financing, venture capitalists rarely have information upon which to base changes of the set stock price because the stock is not tradable . . . .”<sup>57</sup> The question therefore arises as to whether this is true in general for non-listed stocks in PE portfolio or only for rather early stages of investment (a question which we will also address from an empirical point of view in the next section).

In any case, the degree of disclosure of the portfolio firm's management may lead to an enhancement of the PE firm's level of information. Additionally, and even more importantly, it allows third parties (potential PE investors into the portfolio firm, auditors, and LPs) to reduce informational asymmetries.

Second, we look into the potential benefits and costs of PE investors, which affect their willingness to properly disclose performance information to their investors. The main question in both steps is under which circumstances there are sufficient incentives for proper voluntary disclosure.

Third, we look into the implications as well as the costs and benefits of binding industry guidelines and regulation for the disclosure of financial figures from the portfolio firms to the PE firm as well as of PE firms to their investors.

#### A. Disclosure of Firm Specific Information

From a theoretical perspective, it has been often argued that there are strong incentives to voluntarily disclose information in order to avoid negative signals conveyed to outsiders if voluntary disclosures are not made.<sup>58</sup> The most notable benefit for firms seeking PE (or having already PE investors on board) is the positive effect of corporate disclosure on the

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<sup>57</sup> *Independence of the Financial Accounting Standards Board Before the Subcomm. on Financial Management, the Budget, and International Security*, 108th Cong. 3 (2004) (statement of Mark Heesen, President, Venture Capital Ass'n).

<sup>58</sup> See Sanford Grossman & Oliver Hart, *Disclosure Laws and Takeover Bids*, 35 J. FIN. 323 (1980); see also Paul R. Milgrom, *Good News and Bad News: Representation Theorems and Applications*, 12 BELL J. ECON. 380 (1981).

cost of capital. Firms then have an incentive to voluntarily report and disclose value relevant information truthfully. For instance, Merton makes the point that disclosure by lesser-known firms can make investors aware of this firm and thereby enlarge the firm's investor base.<sup>59</sup> In the context of PE, better quality reporting may reduce the screening costs of PE firms and thus make the respective portfolio firm more attractive for investments. Increased disclosure is not, however, without cost. It requires higher levels of financial expertise and knowledge, higher preparation costs and can also have indirect costs, as information made public and provided to investors can be used by competitors. This reduces the firm's disclosure incentives.<sup>60</sup> The existence of multiple audiences, however, might also induce acceleration of announcing bad news, e.g., in order to deter competition.<sup>61</sup>

It is not fully clear whether the fact that PE funds are insiders in their portfolio firms after they have invested leads to more or less incentives to disclose information publicly. On the one hand, there may be less need because the main investor is better informed. Revealing less information may imply for the firm's management that it receives less valuable advice; revealing more information may, however, imply more stringent monitoring. Thus, it depends overall on how "management friendly" the monitoring PE investor is perceived to be. The friendlier the PE firm is perceived to be toward management,<sup>62</sup> the more willing the firm's management should be to disclose information. On the other hand, more disclosure may attract more new investors, which is in the interest of the PE firm seeking either new investors for future financing rounds or a way to exit.<sup>63</sup>

#### B. Determinants of Potential Reporting Biases of PE Funds

Even if PE managers are sufficiently informed of the value of their portfolio firms, this does not necessarily imply that they will report in an unbiased fashion to their own investors. The PE manager faces a basic trade-off: on the one hand, intentionally reporting excessively high valuations (e.g., by intentionally delaying write-downs) may increase the

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<sup>59</sup> Robert C. Merton, *A Simple Model of Capital Market Equilibrium with Incomplete Information*, 42 J. FIN. 483, 503 (1987).

<sup>60</sup> See Esther Gal-Or, *Information Sharing in Oligopoly*, 53 ECONOMETRICA 329 (1985); Robert E. Verrecchia, *Discretionary Disclosure*, 5 J. ACCT. & ECON. 179 (1983).

<sup>61</sup> See Masako N. Darrrough & Neal M. Stoughton, *Financial Disclosure Policy in an Entry Game*, 12 J. ACCT. & ECON. 219 (1990); Alfred Wagenhofer, *Voluntary Disclosure with a Strategic Opponent*, 12 J. ACCT. & ECON. 341 (1990).

<sup>62</sup> See Renée B. Adams & Daniel Ferreira, *A Theory of Friendly Boards*, 62 J. FIN. 217 (2007).

<sup>63</sup> There are a number of further benefits and costs of disclosure (see Leuz & Wysocki, *supra* note 56) which, however, do not actually apply to firms being engaged in the PE markets.



probability of raising a follow-on fund successfully. On the other hand, reporting excessively high valuations may lead to a potential loss in reputation, often considered the main asset of the PE firm vis-à-vis its own investors.

In a nutshell, this basic trade-off can be considered to be a repeated game between investors, both current and potential, and the PE firm. Due to an uncertain endpoint it can be considered as an infinitely repeated game. The PE firm faces the problem of either playing cooperatively (i.e., reporting truthfully) or cheating (i.e., intentionally reporting too high valuations). Whereas in the former case it will keep its reputation and can also earn the cooperative payoffs in the future, in the latter case, if detected, it will lose its reputation and earn strictly lower profits in the future. The likelihood of detection depends on whether investors can distinguish between external factors leading to a reduction in value and over-reporting. The loss, or to be more precise, the discounted value of this, has to be compared with the one-time benefit of cheating which increases the probability of receiving funding for the follow-on fund. In more formal terms, cheating (i.e., intentionally over-reporting) is optimal if benefits exceed costs.

The decision to intentionally over-report is therefore driven by factors which determine this basic trade-off. Reputational concerns are most affected by the track record of the PE fund and manager. More experienced fund managers have more to lose and relatively less to gain (since they can use their proven track record rather than overvaluations) in order to convince investors to put up capital for a follow-up fund. In contrast, inexperienced PE managers have an incentive to grandstand and over-report. A similar phenomenon can be observed in the case of IPOs.<sup>64</sup> In addition, the likelihood of detection is, given our above framework, clearly related to the age of the firm as well as to the age of the PE fund. With regard to early-stage investments, there are many other sources of uncertainty which external investors cannot easily oversee and are therefore very difficult to disentangle ex-post from over-reporting. Similarly, investments early in the lifetime of the funds give PE managers more time until exits have to be realized. Hence, both factors give rise to more pronounced incentives to over-report, or to delay write-downs.

Further factors affecting the above trade-off are market factors in the PE industry and accounting standards. The PE industry is characterized by cyclical movements<sup>65</sup> throughout which money inflows differ significantly over time. With more money pouring into the industry, funding of follow-on funds is facilitated, reducing incentives to overstate non-exited

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<sup>64</sup> See Paul A. Gompers, *Grandstanding in the Venture Capital Industry*, 42 J. FIN. ECON. 133 (1996).

<sup>65</sup> See PAUL A. GOMPERS & JOSH LERNER, *THE VENTURE CAPITAL CYCLE* (1999).

investments in the portfolios of existing funds. The link to accounting and reporting standards is more indirect. Since PE funds are organized as partnerships in most cases, they are basically unregulated in every country, implying that financial reporting standards do not apply (see above) directly. Accounting and reporting standards may, however, affect the reporting and disclosure behavior of PE funds indirectly via the reporting standards in place for the portfolio firms only. More stringent reporting standards make it more difficult for PE funds to avoid write-downs and report potential losses associated with their portfolio firms.

### C. Financial Standards, Disclosure, and Regulation

Insufficient incentives for voluntary disclosure are a necessary but by no means sufficient condition for mandatory disclosure or some degree of regulation in this area. The first step towards a justification of mandatory (regulated) disclosure is that a market failure exists. If that is the case, it needs to be shown that mandatory valuation standards and disclosure achieve better outcomes.

There are two objectives behind potential regulatory intervention in this regard. The first objective is to inform the current investor properly about the true value of the current portfolio and his share therein. The second objective is to avoid the misallocation of capital flowing into the PE industry and thus into individual funds due to grossly overstated returns.

There are two sources of market failure which cannot be easily covered with private contracts: first, the existence of externalities imposed on other players in the industry by misreporting funds. Second, and related, is the lack of any credible direct sanctions being imposed in the case of fraud and misinformation. A third argument in favor of regulation is that mandatory principles of disclosure of performance information are a cheaper solution compared to market solutions. Given the high degree of uncertainty and complexity associated with valuing venture capital investments in particular, it seems to be rather unlikely that state bureaucrats are better equipped than industry professionals with setting up sensible rules and guidelines for the reporting of fair values of portfolio companies to investors. Redirecting the reporting standards towards the mandatory reporting of liquidation values may lead to a simpler valuation process and may therefore save resources, but clearly does not fulfill the overall objective of informing current as well as future investors of the underlying true value of the PE investment.

The first argument for mandatory reporting and disclosure standards displays the view that, in the absence of regulation, information production by the private sector may lead to misreporting. This will invoke negative externalities on other players in the industry, most notably other PE funds (for which it becomes more difficult to raise funds) and potential investors

(which may channel too much capital into the industry and thus to the “wrong” funds). While there is little doubt that such externalities exist, given the difficulties with setting up a consistent and binding fair value reporting scheme in the PE industry (see also the arguments above), it is highly questionable whether mandatory regulatory approaches are superior to private sector efforts to tackle this problem.<sup>66</sup> There is a definitive need for transparency in order to reduce transaction costs. But since potential investors in PE are typically either well-informed or capable of gathering proper information (e.g., through gatekeepers and other specialized intermediaries) there is no necessity to protect these investors excessively. It should be noted that this is obviously a clear reason for limiting the direct access of small investors to PE funds; but not a convincing one for mandatory disclosure and regulation overall. The second argument for regulatory intervention, namely that mandatory reporting and disclosure is a credible commitment with respect to sanctions, is not very convincing either. There are market mechanisms, such as loss of reputation, signaling effects stemming from deviating from industry guidelines, etc., which may help to overcome this problem. In contrast, given the problem of detecting fraud and misreporting, it is not really clear why a mandatory regime may provide a more efficient solution to this.

Overall, this implies that there are obviously a number of significant problems associated with reporting and disclosure based on industry standards which give a lot of leeway to the fund manager applying them. But, despite this, given the limited justification and effectiveness of mandatory disclosure rules, there seems to be little ground for public intervention regarding financial reporting and disclosure of financial performance (this by no means embraces other measures, such as the ones which are directed towards achieving more transparency on corporate governance and on financial structures in the portfolio firms).

#### V. DISCLOSURE AND REPORTING PATTERNS OF VENTURE- BACKED PORTFOLIO FIRMS

Given the incentives to voluntarily disclose information and the existence of reporting standards, it is important to understand whether the financial reporting of portfolio firms reflects to some degree the underlying value of the firm. Or to put it more succinctly: Are PE managers really fishing in murky waters without additional information, or can they infer value-relevant information even from the financial reporting of the portfolio firm?

The empirical answer to this question is somewhat ambiguous. Using

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<sup>66</sup> See Paul G. Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. CHI. L. REV. 1047 (1995), for a similar argument with respect to listed companies.

a panel of U.S. biotech firms, Hand explores the value-relevance of private firms.<sup>67</sup> He shows that, with the exception of firms at the beginning of their life-times, financial statements are value-relevant in the venture capital market.<sup>68</sup> He finds that the value-relevance of financial statements of private venture-backed firms is nearly of the same magnitude as in the public equity market.<sup>69</sup> Firms' financial statements are value-irrelevant for the initial stock series but become progressively more value-relevant as firms mature.<sup>70</sup> This suggests that PE investors can indeed extract information from financial statements, except for early-stage and seed investments. Armstrong et al. confirm and extend this view.<sup>71</sup> They analyze a broader set of venture-backed early-stage companies in different industries and find that financial statements are significant not only for the levels variables, but also for the change of valuations.<sup>72</sup> "Changes in financial statement variables are contemporaneously associated with changes in PE valuations."<sup>73</sup> The result is that items in financial statements of successful firms, such as cash outlays, provide a reliable predictor of future success, and hence the implied value of the firm.

All this clearly indicates that even for early stage investments, PE firms can infer information concerning firm valuation from financial statements of successful firms (which are finally exited via an IPO). There is, however, one important caveat: major valuation problems arise for the unsuccessful venture-backed firms which call for potential write-downs. The above studies focus only on successful firms which are exited via IPOs. We are not aware of any study investigating the relationship between financial disclosure and valuation for unsuccessful firms.

A related question to our above discussion is whether the actual or potential involvement of PE investors has an impact on the quality of disclosure of the firm. Beuselinck et al. address this question by using a sample of Belgian PE-financed companies.<sup>74</sup> They show that firms do not reveal more information before receiving PE investments compared to their non-PE counterparts.<sup>75</sup> However, after having received PE financing, these

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<sup>67</sup> Hand, *supra* note 5.

<sup>68</sup> *Id.* at 634.

<sup>69</sup> *Id.* at 633.

<sup>70</sup> *Id.* at 637.

<sup>71</sup> Chris Armstrong, Antonio Davila & George Foster, *Venture-Backed Private Equity Valuation and Financial Statement Information*, 11 REV. ACCT. STUD. 119 (2006).

<sup>72</sup> *Id.* at 120.

<sup>73</sup> *Id.* at 121.

<sup>74</sup> Christof Beuselinck, Marc Deloof & Sophie Manigart, *Private Equity Investments and Disclosure Policy*, EUR. ACCT. REV. (forthcoming 2009) (manuscript at 12), available at <http://ssrn.com/abstract=616625>.

<sup>75</sup> *Id.* at 30.

(unlisted) firms voluntarily disclose more information.<sup>76</sup> This is consistent with viewing PE firms as being management friendly as well as with the notion that the PE investments lead to a professionalization of the firm. They also find a positive relationship between PE ownership and the degree of disclosure, but only for very high PE ownership levels.<sup>77</sup> Overall, this implies that ownership structure has an impact on the degree of financial disclosure in the sense that closer-held firms seem to disclose more financial information than others.

#### A. Reporting Biases of PE Funds Valuation

In a final step, we aim to shed some light into the empirics of financial reporting and disclosure in the PE industry. We thereby focus on the main aspect of the entire discussion: the reporting of values of unrealized investments. This is difficult for at least two reasons. First, there is a shortage of useful applicable data. Looking at valuation at the fund level is clearly a first step<sup>78</sup> which, however, only gives indirect hints as to whether (and under which circumstances) PE funds do indeed overstate the values of their unrealized investments. An important further step is to look into returns and valuations at the level of the individual portfolio company. This second step provides some first indications about the differences in reported returns between realized and unrealized investments.

We use data provided by the Center of Private Equity Research (CEPRES). The CEPRES data set consists of a very large proprietary PE data set which provides detailed information about returns realized and reported at the level of the individual portfolio firm.<sup>79</sup> CEPRES was jointly founded by one of the largest European fund-in-fund investors and Goethe-University of Frankfurt am Main.<sup>80</sup> Its main purpose is to collect data with the help of the worldwide operations of the fund-in-fund investor who is engaged in venture capital as well as in PE investments.<sup>81</sup> The data comes from venture capital and PE funds that our fund-in-fund investor was in contact with, and includes not only funds in which actual investments were undertaken, but also those funds in which the fund-in-fund investor had a potential interest to invest.<sup>82</sup> The data summarized in Table 2 comprises the

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<sup>76</sup> *Id.*

<sup>77</sup> Christof Beuselinck & Sophie Manigart, *Financial Reporting Quality in Private Equity Backed Companies: The Impact of Ownership Concentration*, 29 SMALL BUS. ECON. 261, 271 (2007) (discussing the authors' finding that increasing PE ownership stakes are to some extent substitutes rather than complements for corporate disclosure).

<sup>78</sup> See Lopez de Silanes & Phalippou, *supra* note 51.

<sup>79</sup> See Center of Private Equity Research, <http://www.cepres.de/>.

<sup>80</sup> *Id.* (follow "About Us" hyperlink; then follow "History" hyperlink).

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

total current CEPRES database and consists of data from 322 venture capital funds, 102 venture capital firms, 9907 observations for entrepreneurial firms for thirty-eight years (1971–2008), and sixty-one countries from North and South America, Europe, and Asia. The data are completely anonymous. For reasons of confidentiality, names of funds, firms, and other identifying characteristics are not disclosed.<sup>83</sup> With hindsight, comparing the average and median IRRs of unrealized (average: 19.14%; median: 0.02%) versus realized (average: 29.91%; median: 13.53%) investments do not initially seem to indicate that PE funds overstate the valuation of their unrealized investments. Table 2, however, reveals that the return data are highly skewed and that most, but definitely not all, unrealized investments are kept in the books at the cost of the investment (only 8% of all unrealized investments in our sample are valued at below the costs of investment, implying a negative IRR).

TABLE 2:

This table provides an overview on reported versus realized IRR of portfolio firms.<sup>84</sup>

		Unrealized/Partially Realized Portfolio Firm Investments			Fully Realized Portfolio Firm Investments			Difference Tests (t-Values)	
		# Firms	Average IRR (in %)	Median IRR (in %)	# Firms	Average IRR (in %)	Median IRR (in %)	Means	Medians
<b>Part A</b>	<b>All Funds</b>								
	All Funds in the Data	9907	19.14	0.02	12216	29.91	13.53	-4.18	-5.25
<b>Part B</b>	<b>Fund Characteristics</b>								
	Age of Specific PE Firm >=10	5425	21.01	0.00	5188	27.37	8.97	-1.70	-2.40
	Age of Specific PE Firm <10	4482	16.88	2.01	7028	31.79	15.16	-4.15	-3.66
	Age of Specific PE Fund >=5	1299	22.84	8.21	1809	30.30	18.74	-1.41	-1.99
	Age of Specific PE Fund <5	8595	18.57	0.00	10407	29.84	12.40	-3.93	-4.32
<b>Part C</b>	<b>Portfolio Firm Characteristics</b>	cont.	below						
	Early	1606	6.83	0.00	1641	18.68	-45.30	-1.35	5.15
	Expansion	1003	15.21	0.00	1166	15.84	6.98	-0.12	-1.29
	Growth	528	18.26	6.13	963	33.31	18.41	-1.89	-1.54

<sup>83</sup> We should note that the return data displayed suffer from the typical shortcoming of return data based on internal rates of returns. Nevertheless, we think that they are very valuable for our illustrative purposes and do not distort matters structurally.

<sup>84</sup> Data in the table comes from Center of Private Equity Research, <http://www.cepres.de/>, and the calculations of the authors.

Table 2 (Continued)

Table 2 (Continued)									
		Unrealized/ Partially Realized Portfolio Firm Investments			Fully Realized Portfolio Firm Investments			Difference Tests (t-Values)	
		Average IRR (in %)	Median IRR (in %)		Average IRR (in %)	Median IRR (in %)			
	# Firms				# Firms			Means	Medians
Part C	Portfolio Firm Characteristics	cont.							
	Later	504	27.38	0.00	476	65.48	12.89	-2.09	-0.71
	LBO	613	17.19	14.20	451	29.67	24.37	-2.91	-2.38
	MBO/MBI	1729	30.37	10.88	2495	44.34	27.51	-2.77	-3.30
	Mezzanine	6	-24.42	-37.32	11	26.04	31.94	-2.73	-3.74
	Seed	333	4.63	0.00	393	-1.83	-57.55	0.47	4.21
	Special Situations	0			1	22.65	22.65		
	Spin Off	11	6.25	0.00	7	-9.99	-89.17	0.38	2.06
	Start Up	484	-2.21	0.00	509	2.70	-60.75	-0.44	5.39
	Turnaround	32	70.83	49.69	51	63.14	34.86	0.20	0.38
Part D	Countries								
	Canada	104	66.73	16.54	125	49.97	18.32	0.36	-0.04
	China	312	42.18	0.00	149	-4.21	-11.43	2.78	0.69
	Denmark	54	22.35	0.00	45	41.99	22.42	-1.06	-1.21
	Finland	89	10.64	3.11	143	41.02	16.96	-1.85	-0.84
	France	577	14.83	6.93	721	19.17	14.39	-0.62	-1.07
	Germany	453	29.11	1.04	476	45.00	5.99	-0.98	-0.31
	India	189	40.39	5.50	116	22.42	17.03	1.15	-0.73
	Ireland	45	-0.72	0.00	29	6.67	10.82	-0.72	-1.05
	Israel	161	-10.22	0.00	147	20.14	-20.39	-1.54	1.03
	Italy	144	48.99	0.37	197	22.28	23.13	0.97	-0.83
	Netherland	102	21.85	9.52	120	20.00	22.21	0.22	-1.48
	Spain	104	12.99	6.29	125	32.69	22.42	-1.59	-1.30
	Sweden	176	12.62	5.74	233	44.47	20.30	-1.96	-0.89
	Switzerland	73	8.77	0.77	62	137.03	26.60	-2.18	-0.44
	Taiwan	43	9.54	0.00	51	16.82	9.99	-0.38	-0.53
	UK	937	21.14	4.16	1592	27.63	22.54	-1.10	-3.12
	USA	5555	16.51	0.00	6866	29.42	10.41	-3.66	-2.95

Furthermore, taking a closer look at the breakdown of the data reveals a number of interesting patterns. Most notably, there is a strong discrepancy between the IRRs of realized and unrealized investments in the case of early stage investments, which account for roughly twenty percent of all observations in our data set. At this stage, median IRRs of unrealized and realized investments are statistically significantly different. While the median realized IRR is -45.3%, the median unrealized return is zero percent. This result clearly contrasts not only with the difference in average

returns (18.68% for realized and 6.83% for unrealized returns) but also differs from the overall sample for which the difference in median returns points in the opposite direction. This suggests that venture capital managers are, to put it cautiously, more optimistic for their current ventures than they should be. The same type of pattern can be observed for start-up companies (and to a lesser extent for seed investments) where the differences in median returns are even more pronounced. There too, venture capital firms seem to be quite reluctant to report write-downs: whereas the median IRR of realized investments is negative 60.75%, the reported IRR on unrealized investments is zero percent. Two potential factors may play a role in this observed pattern. On the one hand, the negative number associated with realized investments in the start-up sector reflects to some extent the downturn in the high-tech sector in the early 2000s. On the other hand, unrealized investments are younger in the sense that they are in the portfolio for only a short period of time implying that write-downs cannot yet be foreseen. But even when taking these factors into account (and the second factor does not even indicate that valuations are correct predictors), the data suggest that the valuations in the venture capital segment are grossly overstated.

While Table 2 does not reveal any clear-cut patterns with respect to fund characteristics, there are some significant differences and interesting observations which can be made for different countries. Most notably in China (and to a lesser extent in Israel) reported IRRs for unexited investments are higher than those of exited investments. In the case of China, this is true for the average as well as the median IRRs. In many countries the median return is zero percent, clearly reflecting the fact that many valuations are at costs of investment.

These comparisons suffer from differences among realized and unrealized investments as well as from a potential selection bias. Unrealized firms may exhibit endogenous differences compared to realized investments. Cumming and Walz aim to overcome this endogeneity problem by developing a two-stage approach.<sup>85</sup> They rely on the CEPRES data set as well, mainly the one for the 1990–2003 periods.<sup>86</sup>

The first step in their two-step procedure is derived from a benchmark model based on realized rates of returns, from which they derive regression coefficients.<sup>87</sup> These coefficients can then be used in order to compute predicted returns.<sup>88</sup> In the final step, the difference between actual returns (based on the PE's reported valuations) and predicted returns are regressed

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<sup>85</sup> Cumming & Walz, *supra* note 51.

<sup>86</sup> *Id.* at 2, 33.

<sup>87</sup> *Id.* at 16.

<sup>88</sup> *Id.* at 15.



based on a number of exogenous factors.<sup>89</sup>

They find systematic biases in the reporting of valuations of unrealized investments relative to the forecasted IRRs.<sup>90</sup> It turns out that these reporting biases can be traced back to institutional factors as well as firm and fund characteristics. Reporting biases can be explained by cross-country differences in accounting standards as well as legality.<sup>91</sup> This implies that the accounting standards have, via their effects on the stringency of reporting on portfolio firms, had an effect on the degree of over-reporting: the more stringent the underlying accounting standards are, the less pronounced is the degree of over-reporting. The same is mostly true for the legal environment: better laws<sup>92</sup> lead to a reduction in the incentives to overstate the value of investments by allowing for better contract enforcement.

With respect to firm characteristics, their analysis confirms our first conjecture above: there is more overvaluation among early-stage firms than at later stages of the firm's life cycle. Furthermore, it turns out that there is more over-reporting for small firms and firms in high growth industries.<sup>93</sup> Altogether this indicates that, given the more pronounced difficulties in disentangling exogenous uncertainties and overvaluation, PE managers have more pronounced incentives to overstate the value, or delay write-downs, of firms for which the valuations are surrounded by a high degree of uncertainty.

Finally they also find that fund characteristics matter: the younger the PE fund, the more likely it is to observe values which are—using the difference to predicted returns—overstated. This provides empirical support for the grandstanding hypothesis discussed above.

## VI. SUMMARY

By standing between the investor and the portfolio firms, PE funds serve to overcome, or at least mitigate, agency and control problems. To overcome the danger that this process of financial intermediation will lead to an increase rather than a decrease of agency problems and informational asymmetries, a number of incentive, control, and disclosure devices must be put in place.<sup>94</sup> In this Article we have focused on the latter, namely the

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<sup>89</sup> *Id.* at 17.

<sup>90</sup> *Id.* at 27.

<sup>91</sup> Cumming & Walz, *supra* note 51, at 27.

<sup>92</sup> See Raphael La Porta, Florencio Lopez de Silanes, Andrei Shleifer & Robert Vishny, *Law and Finance*, 106 J. POL. ECON. 1113 (1998) (discussing the indices used to measure the quality of legal rules in differing countries).

<sup>93</sup> Cumming & Walz, *supra* note 51, at 38.

<sup>94</sup> See generally GOMPERS & LERNER, *supra* note 65. See CUMMING & JOHAN, *supra* note 55, Bienz & Walz, *supra* note 55, and Kaplan & Stromberg, *supra* note 55, for analysis on

reporting and disclosure process through which PE funds aim to keep their current as well as future investors informed. Furthermore, we have noted that financial reporting also may affect, via the compensation structure of the PE manager, the distribution of potential gains among the limited and general partners.

While reporting and disclosing cash-outflows and cash-inflows due to realization of investments is straightforward and can be addressed rather easily, the huge challenge is the valuation of unrealized investment and their reporting to LPs. Given that PE firms typically invest in non-listed firms making these assets illiquid and non-tradable, valuing and thereby forecasting the future cash flows resulting from these investments is not only surrounded by high degrees of uncertainty and complexity, but also by a high degree of subjective assessment. In addition, we show that there are pronounced conflicts of interest which make truthful revelation and objective judgment highly unlikely.

Our empirical discussion clearly reveals that there are significant reporting biases which are especially pronounced in early stage, venture capital investments. These reporting biases can be observed across the globe, differing in extent because of the quality of the legal framework and accounting standards employed by various nations.

There are, from our point of view, five main implications from our results. First, it must be noted that valuing non-listed firms is highly complex and more of an art than a science, especially in an early-stage environment. Second, this does not explain observed reporting biases which systematically tend to be in the direction of overstating (e.g., due to a delay in appropriate write-downs) rather than understating values. Third, in the last decade or so we have seen a larger number of industry guidelines aimed at providing non-mandatory standards for the valuation and disclosure of PE investments. These guidelines point in the same direction world-wide by setting up rules to report the “Fair Values” of the unrealized investments. But, while creating significantly more transparency and consistency over time, there is still sufficient leeway for PE managers to strategically over-report. Fourth, we have discussed and rejected the idea of stringent mandatory disclosure rules and reporting standards for the industry for two reasons: first, there is little room for truly pinning down the valuation as there is no discretionary power for the PE managers involved; second, there is little reason to believe that mandatory standards can do any better than private incentives and contracts to collect information and disclose financial reports. LPs are, and should be, large investors with a pronounced capability of collecting and processing information. Finally, investors should not put too much weight on the

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the allocation of control rights.

valuation of unrealized investments and should definitively avoid compensation contracts which base remuneration on these valuations rather than on realized cash flows. Valuation guidelines may—as we have argued above—improve matters with regard to the valuation of unexited investments, increase transparency, and allow for comparability. But given the special circumstances of the PE industry, such guidelines will never be able to (and even should not) eliminate valuation leeway for the PE manager. The main asset of PE firms is their reputation. Investors should not base this reputation on the valuation of unexited investment but instead should look at hard facts: the cash flows that PE firms and managers have realized with exited investments in the current fund or with previous funds.