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## *On Post-crisis Bank's Fair Value Measurement Disclosure*

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# On post-crisis banks' fair value measurement disclosure

**Purpose** We investigate the information content of the post-crisis new accounting disclosure requirements for banks. We explore the relationship between the banks' selection of valuation techniques, their risk assessment and performance, in the context of the theory of performativity. At a high level, the theory interprets a valuation technique that gains a critical mass of users as a market device that undergoes a performative process.

**Design/methodology/approach** We use regression techniques to investigate the interplay between the selection of valuation techniques, risk assessment and performance. To do so, we rely on the banks'10-K and 20-F reports from 2012 to 2015. We use three key ingredients in our model: (1) the banks' return on equity (ROE) as a proxy for performance; (2) the range of unobservable inputs as a proxy of the banks' risk assessment; (3) the intensity of use of the valuation techniques, as a proxy for the extent to which a technique has undergone a performative process.

**Findings** We find that the banks' performance and risk assessment are inversely related to the intensity of use. Moreover, we find that a wider range of unobservable inputs is typically associated with a less frequently used technique. These findings also suggest that the existence of a performative process for valuation techniques creates less differentiation and negatively impact the relative performance of banks.

**Research limitations/implications** A major research limitation is the small size of our sample. While our initial sample included 21 dealers, only eight complied by the new accounting disclosure requirements.

**Practical implications** From a policy perspective, our findings imply that policymakers now have some tools, more specifically the disclosed range of unobservable inputs is a strong indicator of performance. Policymakers are able to monitor banks' risky positions in order to avoid the "too big to fail."

**Originality/value** The contribution of this paper is twofold: 1. We empirically exploit the information content of the new accounting disclosure requirements. 2. We apply the theory of performativity to shed light on the interplay between performance, intensity of use of valuation techniques and risk assessment.

**Keywords**: accounting disclosure, theory of performativity, valuation techniques, investment banking, great recession, fair value measurement, unobservable inputs, ROE, risk assessment.

**JEL Codes** : C21, C22, D21, G01. G24, K23, Z13, M41, M48

## Introduction

In the aftermath of the global financial crisis, the independent Financial Accounting Standards Board (FASB) reviewed its accounting standards and began requiring public companies to disclose quantitative and qualitative information about the valuation techniques used to price financial instruments (FASB, May 2011). This update explained how public companies ought to report fair value measurement but was not intended to establish valuation standards or affect valuation practices outside of financial reporting. The new post-crisis regulatory environment, as it moves toward greater transparency and information disclosure, allows us for the first time to access valuable information about public companies' decisions. However, this opportunity window may close soon, due to a possible upcoming legislative change that would undo the previously imposed disclosure requirement. For example, on March 4, 2015; the FASB discussed the possibility to remove the disclosure requirement on the internal valuation processes for Level 3 fair value measurements.

In this paper, our goal is to is to the interplay between the banks' selection of valuation techniques, their risk assessment and their performance. These relationships are assessed in the context of the theory of performativity using a unique dataset collected from investment banks annual reports over the time period 2012-2015.

In our paper, we satisfy the requirement of the performativity cycle by creating a new measure, namely risk assessment. The risk-taking literature generally associates the construct of risk with the extent to which a decision's expected outcomes are uncertain, decision goals are difficult to achieve, or the potential outcome set includes some extreme consequences (Gray and Cannelle 1997; Sitkin and Pablo 1992, Weber and Milliman 1997, Wiseman and Gomez-Mejia 1998). This

construct of risk corresponds to the measures in our study, as investment bankers face the highest degree of uncertainty when pricing financial instruments with Level 3 inputs. The fair value measurement of financial instruments is, for many researchers and practitioners, in part responsible for the great recession due to its lack of reliability and imperfections (Majercakova & Skoda, 2015; Palea, 2014). Therefore, a better measurement of the risk associated with the use of the fair value measurement techniques is crucial to understand the decisions taken by investment banks and their impact on their performance. Moreover, risk assessment, namely an actor's assessment of the risk inherent in a situation—in terms of the decision maker's labeling of the situation (Dutton and Jackson 1987, Jackson and Dutton 1988), probabilistic estimates of the extent and controllability of risks, and confidence in those estimates; (Baird and Thomas 1985, Duncan 1972, Vlek and Stallen 1980)—also dictates that risk takes place. We consider all of these outcomes and definitions of risk when updating the definition of this construct. Diverging from past studies, we build a risk assessment construct from the unobservable inputs reported in the annual reports.

The paper proceeds as follows. First, we discuss the theoretical implications of the sociological theory of performativity on valuation techniques and risk assessment. Next, we discuss our process of data collection, including the sample and procedures. After this, we present our empirical results. The final section concludes.

**Theoretical Background**

In this section, we first introduce the theory of performativity and provide a clear link to our results. We attempt to convey the essence of the theory through providing a quintessential example of how the theory has been applied in Finance: The Black-Scholes model (Black and Scholes 1973). Subsequently, we discuss the performative process of valuation techniques used to price financial

instruments by investment bankers. Finally, we describe investment-banking revenues and risk assessment as aspects of the enactment of the environment and present propositions.

A facet in economic sociology, performativity assumes that market devices engage their environment by creating individual reproduction of themselves (Callon and Muniesa 2005, Skaerbaek and Tryggestad, 2010). In other words, a market device is a static entity that is created for an unexercised purpose, and creates a phenomenon in which it enacts its environment (Callon, 2007; Callon, et al., 2007). Researchers in the field of financial economics began to pick up on the theory of performativity early in the 21st century as they recognized that the domiciles of options markets and financial markets in general stemmed from a self-fulfilling prophesy (Ferraro, et al., 2005). Performativity nowadays entails the use of many market devices in science. An example of a performative market device most relevant to our study is the Black Scholes options pricing formula (hereafter BSM) (MacKenzie & Millo, 2003).

To demonstrate how performativity is used for various business techniques, Abrahamson et al., (2016) applied the BSM, the focus of the article by MacKenzie and Millo (2003). Their market devices were business techniques, or linguistic prescriptions created to improve the operations of business organizations. The way in which the business techniques diffuse, according to the authors, is by altering the business world and thus making these types of techniques more useful in that environment. Originally, the BSM was grounded in several restrictive assumptions in theory and provided quite inefficient predictions of option prices. Market devices have served a constitutive role in terms of how they enact accounting environments (Baxter & Chua, 2003). Nevertheless, because it diffused so quickly, the fact that it was most of the time incorrectly pricing the options encouraged traders to arbitrage the possibilities for which it allowed. Consequently, option prices

began to match those that BSM predicted.

In this paper, we attempt to establish a link between the theory of performativity and the accounting information disclosed by investment banks post-financial crisis. More particularly, we consider valuation techniques as market devices that enacts their own environment, the financial market.

Previous studies explored the definition of business and accounting techniques as market devices. Particularly, it has been shown that accounting devices shape the interaction between actors and their environments (Mouritsen, 1999). Thus, it was a successful business technique, in that it not only improved the operations of option investment bankers but also made their predictions even more powerful and beneficial. Further, it provided proof, based on science, to investment bankers that the BSM was in fact correct and ought to be used (MacKenzie *et al.* (2007).

In this paper, we define valuation techniques as methods selected by investment banks to optimally price financial instruments in order to maximize profit. We measure management effectiveness using the well-established financial indicator Return on Equity (hereafter ROE). It measures the rate of return on the money invested by common stock owners and retained by the company thanks to previous profitable years. It demonstrates a company's ability to generate profits from shareholders' equity (also known as net assets or assets minus liabilities).

The process through which investment bankers price financial instruments using valuation techniques, like the process of the BSM, is performative. Further, the process for the intensity of use and its correlation with investment banking objectives are illustrated in Figure 1.

**[Figure 1 here]**

The performative process occurs in the following way. First, valuation techniques are inanimate objects, written and created for an unexercised purpose and qualifying them as market devices.

That is, we begin with their pure existence. The next step of the performative process involves the actors who interact with the market devices, such as BSM's investment bankers, and allow it to enact the environment. In our case, these actors are the investment banks that, to a varying extent, use the valuation techniques and thereby create the potential for enactment. The extent to which the banks use the valuation techniques is the intensity of use described previously. The self-fulfilling prophesy manifests itself in the last step of the process, in which the valuation techniques create markets that are more or less profitable. Additionally, it is important to note that valuation techniques are particularly performative. They engender the self-fulfilling prophesy almost flawlessly because they themselves both cause and are a product of the investment banks' activities. Moreover, they create markets in and of themselves. In our paper, we recognize two important relationships: with ROE and with risk assessment.

In our study, we aim to show that a performative process exists with the use of valuation techniques by investment bankers in the setting of U.S. investment banks. We identify the two processes described above. Namely, we analyze the link between the intensity of use, or the frequency at which valuation techniques are used, their popularity, and not only risk assessment, but also ROE. We expect the intensity of use of a market device, namely its utilization by investment bankers to a greater or lesser extent, to provide the performative process. The higher the intensity of use, the lower the ROE of a firm. This is due to the fact that more popular techniques lead to more competition between banks, thus depressing profitability. Profitability is measured as ROE in this case to reflect the value of profitability that occurs in the performative process. As demonstrated in Figure 1, the valuation technique undergoes a process during its transformation that allows it to enact its environment. What is important to note is that the intensity of use mediates the performative process between valuation techniques and ROE. Thus, we claim:

*Proposition 1: The intensity of use of valuation techniques is correlated with ROE*

A similar performative process takes place for risk assessment. The intensity of use, or the popularity of techniques, enacts the market and how investment bankers assess the risk associated with it. We propose that banks that use some valuation techniques less or more frequently than others perceive different levels of risk associated with these techniques. Thus, we claim:

*Proposition 2: The intensity of use of valuation techniques is correlated with Risk Assessment*

These relationships provide for an explanation regarding the process that valuation techniques undergo through the mediating role of the intensity of use. The process is similar with ROE and risk assessment in that both allow the valuation techniques to be transformed in order to enact the environment, be it that of the market for ROE or that of bank's approach for risk assessment.

**Data Collection**

The Financial Accounting Standards Board issued its Accounting Standards Update (ASU) in May 2011, yet public companies were not required to provide several new disclosures related to their fair value measurements until the first quarter of 2012, where the fair value of instrument is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The requirement of providing detailed information about the assumptions for their Level 3 measurements (i.e., fair-value measurements determined using significant unobservable inputs) and the processes in place to determine that these measurements are consistent with the fair value framework in U.S. Generally Accepted Accounting Principles (a.k.a. GAAP) was a big challenge for most public companies. In a study published in July 2012, Ernst and Young analyzed the quarterly financial statement disclosures of 60 companies in various industries to help companies compare their disclosures to

those of their peers. Focusing primarily on the new disclosures required for Level 3 measurements, Ernst and Young looked at how companies complied with the requirement to categorize within the fair-value hierarchy items that are only disclosed at fair value. Ernst and Young find differences in the types of quantitative information companies chose to disclose about their significant unobservable inputs (e.g., disclosing the range of inputs used or the weighted average inputs for an asset class) and the level of disaggregation at which they provided the information.

In this paper, we build a unique dataset by collecting quantitative data about the unobservable inputs as well as the valuation techniques adopted by different banks. This data collection is made possible by the new legal environment that pushes for greater transparency and information disclosure. More specifically, the ASU 2011-04 requires companies to disclose the quantitative information about the significant unobservable inputs used in determining Level 3 measurements, a description of the valuation processes a company has in place for its Level 3 measurements and a description of the sensitivity of Level 3 fair-value measurements to changes in the unobservable inputs. Aside from the above three requirements, the ASU 2011-04 does not provide specific guidance on what quantitative information should be disclosed to meet the requirement described in the first item above. Instead, it includes an example of the type of information companies may disclose.

***Sample Characteristics***

We examine 10Ks and 20Fs reports for the 2012-2015 fiscal years, and start by selecting the entire population of US primary dealers as of 2012, (21 dealers in total).[2] Therefore, we only retain

[2] The list is provided by the Federal Reserve Bank of New York through the following link http://www.newyorkfed.org/markets/pridealers_current.html

dealers for which data on valuation techniques used to price the different assets and liabilities are available. We therefore extend Annabi and Reuben (2016a) dataset that was limited to 2012-2013 period. In their paper, Annabi and Reuben (2016a) collect information about the type of unobservable input, the average of unobservable input, the range of unobservable input, the company's end-of-year balance sheet size for the 2013-2014 period. In this paper, we extend this dataset by collecting accounting information for two additional years; 2012 and 2015. Table 1 shows the different banks in our sample, as well as the different categories of traded assets and liabilities, valuation techniques as well as unobservable inputs.

**[Table 1 here]**

While regulators do require financial institutions to disclose the techniques used to value financial instruments, the data collected in our sample suggest that financial institutions are reluctant to provide detailed information. As discussed in the study by Ernst and Young (2012), there are similarities and differences in the way public companies disclose their fair value measurement. The first disclosure group in our sample includes *Citibank* and *Goldman Sachs*. These companies discussed methods of fair-value measurement in their 2011 annual reports but disclosed an official schedule with the significant unobservable inputs only in 2012. Taking Goldman Sachs as an example, the fair-value footnote of its 2011 10K contains a schedule that presents the valuation techniques and the nature of significant inputs generally used to determine the fair values of each class of level 3 cash-instruments. The schedule also explains that for Goldman Sachs' cash instruments, the valuation techniques vary by instrument, but are generally based on discounted cash flow techniques. However, in 2012, the schedule provides more detail, disclosing the range of significant unobservable inputs as of December 2012 and the value of the assets in each cash instrument category. The second disclosure category in the sample includes *Bank of America* and

*Credit Suisse*. This category of banks mentions their valuation methods in the 2011 and 2012 annual reports but does not include a formal schedule. The third and final disclosure group in our sample consists of *Morgan Stanley* and *JP Morgan Chase*. In this category, the banks do not disclose any valuation techniques in 2011. In the 2012 annual report, they disclose the full fair-value schedule.

Aside from the Discounted Cash Flows (hereafter DCF) method, financial institutions provide little information about cash flow forecasting techniques or the discount-rate estimation methods. The 10K and 20F filings typically contain rather generic terms, such as "internally developed forecasts," "bespoke models," "observable proxy," "comparable," etc. We also note that other models, such as comparable pricing, price-based, and the market approach, are even more vaguely defined. In addition, the scenario analysis used to estimate value of an asset is usually defined as stress-testing for abnormal activity in financial markets.

## Results

### *Descriptive Statistics*

To further explore our data, we run descriptive statistics on each of the explanatory variables to our performative process; the intensity of use of valuation techniques, the size of the banks as measured by its balance sheet size, and the banks' risk assessment.

#### *Intensity of use*

In order to measure the frequency with which each valuation technique is used to price the various assets and liabilities traded by investment banks, we introduce a measure of frequency of use that we call *Intensity of Use*. We define it as the number of times a technique is used to price a financial

instrument over the number of times it is used for all the other financial instruments. The intensity of use of a valuation technique is therefore defined as $I_a$, where:

$$IU_a = \sum_{b=1}^{4} \frac{VT_{a,b}}{\sum_{a=1}^{7} VT_{a,b}} \qquad (1)$$

where $VT_{a,b}$ is the valuation technique $a$, where $a = \{1,\ldots,8\}$, for financial instrument $b$, where $b = \{1,\ldots,4\}$ (see Table 1). To demonstrate the validity of our intensity of use measure, we show descriptive statistics. Particularly, remembering that intensity of use is a statistical measure of frequency, we verify its ability to identify intensity by comparing the popularity of techniques. In Table 2, we demonstrate the various levels of intensity attributable to different classes of assets and various valuation techniques.

**[Table 2 here]**

Among the different valuation techniques used by global investment banks, perhaps the most commonly used and best defined is the Discounted Cash Flow (DCF) method. Banks commonly define this valuation method as computing net present value or fair value of estimated/forecasted future cash flows and appropriate terminal value by discounting them with the appropriate discount rate. A similar definition of DCF model can be found in financial literature (Williams, 1938; 1997 reprint; Gordon and Shapiro, 1956; Modigliani and Miller, 1958). Our results in Table 2 corroborate the literature. They show that, on average, discounted cash flow approach is the most popular to price corporate debt, derivatives and structured products. For the valuation of derivatives, we find that investment banks tend to be extremely protective of their models. Other than a few instances mentioning the well-known BSM, for example, banks simply describe their over the counter (a.k.a. OTC) derivative valuation process based on closed-form analytic formulas, simulations models, or a combination of the two. Regarding the pricing approach for corporate

equity, comparable price model seems to be the most widely used. We also notice that models that face a larger range of uncertainty and judgement, such as internal model, have a lower intensity of use across the four categories of assets and liabilities.

We present these descriptive statistics and correlations in Table 3.

**[Table 3 here]**

In Table 3, the average intensity of use, presented here, collapses two variables. Firstly, it combines all of the banks' intensity of use. The interpretation of this is that all of the banks used certain techniques to a greater or lesser extent in the entire sample. Secondly, the measure collapses all of the valuation techniques used in the analysis. It combines all of the values, to demonstrate that, on average, techniques were used less frequently than would be expected. Thus, an average of 45.7% in 2012 means that for all the banks and all of the techniques, the average intensity of use was less than half of what it could have been. When looking over time in Table 3, the mean of the intensity of use is decreasing. This means that the performative process is shaping the intensity of use to confirm more towards a similar use by more banks. The valuation techniques enact the environment through which they reach the ROE and risk assessment as demonstrated in Figure 1. The intensity of use is clearly decreasing, although its standard deviation remains relatively constant.

*Risk Assessment*

We measure banks' risk assessment by a Risk Index (RI) introduced by (Annabi and Reuben, 2016a). They define RI as the standard deviation of unobservable input observations for each valuation technique, $j = \{1, \dots, 7\}$, such that

$$RI_j = \sum_{n=1}^{4} \sum_{i=1}^{8} \sum_{k=1}^{7} \sqrt{\frac{(H_{i,j,k,n} - A_{i,j,k,n})^2 + (L_{i,j,k,n} - A_{i,j,k,n})^2}{2}} \qquad (2)$$

where $n$ represents the year, $n = \{2012,2013,2014,2015\}$, $i$ the bank, $i = \{1, \dots, 8\}$, $k$ the financial instrument and $k = \{1, \dots, 7\}$. Moreover, $H$ and $L$ represent respectively the highest and lowest range values for the unobservable input, and $A$ represents the average range values for the unobservable input. Statics on the annual risk assessment, as measured by risk index, is represented in Table 4.

**[Table 4 here]**

Table 4 represents the average risk assessment per valuation technique for each year we consider in our study. We notice that, in 2012, the valuation with the highest risk assessment is the options model (OM), followed by the discounted cash flows (DCF). We also find that, on average, the 2012 risk assessments for the different valuation techniques were the highest out of the 4 years' observations in our sample.

*ROE*

In our paper, we assume that ROE is a measure of the profitability of the banks as dictated by their choice of valuation techniques. ROE for all the banks in our sample is collected from Ycharts, a financial data research platform. To further our analysis, we first present descriptive statistics on ROE in Table 5.

**[Table 5 here]**

Average ROE in Table 5 increased from 2012 to 2013, then slightly decreased in 2014 to remain almost constant in 2015. Within our sample of banks, Goldman Sachs and JP Morgan were the best performers over the period 2012-2015. Relative to the pre-crisis period, banks ROE have substantially decreased due to tougher regulatory environment.

***Regressions: Intensity of use of valuation techniques***

To quantify the relationship between the banks' performance and the intensity of use, we estimate the following regressions:

$$Y_{it}(ROE) = \beta_0 + \beta_1 Intensity_{it} + \beta_2 Size_{it} + \beta_3 U.S.Domicile_{it} + \gamma_i + \varepsilon_{it} \quad (3)$$

where intensity is defined in equation (1), balance sheet size is measured in billions of dollars, and the ROE is based on twelve-month trailing figures (TTM). In order to distinguish between US and non-US banks, we also use a dummy variable that equates 1 if the bank is domiciled in the US, and 0 otherwise. The regression essentially relates the bank's performance to the intensity of use, after controlling for the banks' balance sheet size and domicile.

Table 6 provides the coefficient estimates for various versions of the regression shown in equation (3). The key takeaway from Table 6 is the negative cross-sectional correlation between the ROE and the intensity of use. Table 6 also shows that the response of the ROE to the intensity of use decreases slightly when we control for the size of the balance sheet. This decline likely reflects the positive, albeit weak, correlation between size and ROE (i.e. larger banks have higher ROE) and thus the ameliorating effect that balance sheet size has on ROE. Similarly, the response of the ROE to the intensity of use further modestly declines when we control for the investment banks' domicile. This modest decline likely reflects the stronger profitability of US banks vs. their foreign peers. All in all, the regression results shown in Table 6 are consistent with our prior in Proposition 1, namely that the valuation techniques' performative process, which we capture through the intensity of use, has a significant impact on the ROE. Moreover, we show that this impact is negative.

**[Table 6 here]**

Since the valuation techniques' performative process evolves over time, we investigate potential time variation in the relationship between ROE, intensity of use, and risk assessment. We do so by running panel regressions of equation (3). The regression results are displayed in Table 7. Except for 2012, the regression coefficient on the intensity of use is negative and significant during all the subsequent years. Again, the key takeaway is the negative correlation between the valuation techniques' performative process and the ROE.

**[Tables 7 here]**

We now turn to Proposition 2: the intensity of use of valuation techniques is correlated with Risk Assessment. To empirically investigate this Proposition, we use the following regression model:

$$Y_{it}(Risk\ Assessment) = \beta_0 + \beta_1 Intensity_{it} + \beta_2 Size_{it} + \beta_3 U.S.\ Domicile_{it} + \gamma_i + \varepsilon_{it} \quad (4)$$

The regression results are provided in Table 8. The key finding from these regression results is the consistently negative and significant relationship between the intensity of use and the risk assessment. The higher the intensity of use of a valuation technique, the less risky is the banks' assessment of their environment. As with Proposition 1, this relationship is robust to the inclusion of the banks' balance sheet size and domicile as control variables.

**[Table 8 here]**

**Discussion and Conclusions**

Given the nature and amount of data available, this study captures the effects of valuation technique disclosure requirements of investment banks on not only performance, in the form of ROE, but also assessments of risk by investment bankers. We conducted our study following a

detailed summary of the theories. Performativity is the theory that market devices enact their environments (Callon and Muniesa, 2005), thus creating a self-fulfilling prophesy (Ferraro *et al.*, 2005). We find that valuation techniques act as market devices due to their nature as object created for unexercised purpose. Particularly, we find that these techniques engage in a relationship with two specific environments. The first is that related to ROE. We look at ROE overall during the period under study, and find that intensity of use of valuation techniques is negatively associated with the ROE. The second relationship is the mechanism between intensity of use of valuation techniques and risk assessment by investment bankers. These mechanisms dictate our propositions, which are confirmed by our results. The two mechanisms are similar, as shows in Figure 1. The process takes place starting with valuation techniques that then, through the intensity of use, associate with the ROE, or risk assessment, respectively. What is important in the performative process is not the direction of the relationship, but rather its significance. If the relationship exists, performativity is taking place. The direction is interesting, but not as important as the relationship.

We also extend a dataset built by (Annabi and Reuben, 2016a), where relevant information about the valuation techniques is collected from 10ks and 20Fs. More particularly, for each of the banks in our sample, we collect information about: valuation techniques(s) used for each financial instrument, quantitative information about the unobservable inputs (range, average and median), the balance sheet size as well as the bank's domicile.

We followed the data collection with data analysis. In our data analysis, we applied a time-series regression on panel data with two control variables. We ran a series of regression starting with 4 regressions on ROE. The first regression was run on data from the entire period. We followed this with single year regressions on ROE, which dictated similar results. The results of these regressions confirmed our propositions. Significant relationships between intensity of use of

valuation techniques and ROE emerged. Our final regression involved risk assessment. The independent and control variables were the same as previous regressions, but the dependent variable was risk assessment, as measured by unobservable input ranges. Again, we confirmed our proposition. The intensity of use of valuation techniques is significantly associated with risk assessment.

The quantitative inferential statistics portion of the analysis contains regressions based on data that model the relationship between the intensity of use, the performance of firms, and the risk assessment of investment bankers. All three of these variables were measured in idiosyncratic ways. Intensity of use is a measure of frequency we use to measure the frequency, or popularity, of each valuation technique. Performance was measured using revenue or returns. Risk assessment was used in the inferential statistics analysis. The latter variable is measured using a new constructed, namely risk index, introduced by Annabi and Reuben (2016a). Our analysis concludes that a negative relationship exists between the intensity of use and its correlates. While this negative correlation can be explained, and we attempted to do so, the important aspect of the correlations is their significance. Because the relationships are significant, we can conclude that the theory of performativity is satisfied. The relationship exists, and the cycle that enacts the environment in which the market device operates exists as well.

To conclude, the disclosure requirements dictated by the Financial Accounting Standards Board following the financial crisis allow for an analysis of valuation techniques used by investment banks and thus an understanding of investment bankers' risk assessments and intensity of use of valuation techniques.

Finally, one extension of the current paper is to conduct a survey among investment bankers that

would allow for a more profound understanding of their decision-making processes. More specifically, it would allow us to deepen our comprehension of the relationship between the intensity of use, risk assessment, and performance. Furthermore, it would give us the opportunity to ascertain whether our constructs, namely that of intensity of use and that of risk assessment, are reasonable and can be applied. Such a survey may prove extremely useful.

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