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EDITORIAL

Dear readers!

Current special issue of the Journal of Governance and Regulation is devoted to the International conference "Governance & Control in Finance & Banking: A New Paradigm for Risk & Performance" in Paris, France, April 18-19, 2013. Since the start of the world financial turmoil a lot of urgent questions arouse for the financial and banking sector concerning necessary reforms and changes in day-to day operations, strategy and regulation. There are several key-points that occupy minds of the practitioners and scholars worldwide ever since. In this respect the vital importance of governance and risk issues for the financial sector was re-emphasized by bank professionals, supervisors and standard setters. How should markets and financial institutions be governed and regulated with regard to risk framework and performance? How to strike the right balance between risk oversight and profit seeking? Does corporate governance really play significant role in risk control and management process? Will the new tendencies in regulation help to achieve more sustainable condition in finance and banking industry? Do financial institutions need stricter regulation? What framework of financial market regulation would be the most efficient in reducing systemic risks? Does corporate governance have potential to contribute significantly to safeguarding against systemic risks? Which corporate governance standards will effectively improve financial institutions in this case? Thus, a new paradigm for risk and performance in finance and banking needs to be developed through governance and control procedures. This wide range of relevant issues was highlighted during the conference.

Hikaru Murase, Shingo Numata and Fumiko Takeda examine how an auditor's reputation for audit quality affects the selection of new auditors in a unique setting.

Vincenzo Capizzi analyzes data on Italian transactions and personal features of Italian Business Angels gathered during 2007 – 2011 with the support of IBAN (Italian Business Angels Network).

Udo Braendle and Yaroslav Mozghovyi present meta-analysis of more than 135 studies in the sphere of Corporate Social Responsibility with concern to the financial sector. Based on their findings authors present implications in discussing how "good CSR" can be fostered.

Kameswari Peddada presents extensive review of available literature on risk management. A reputed textile company has been selected for case-study of performance in terms of risk management.

Eric Pichet diagnoses good and bad practice in post-crisis central banking; assesses the efficiency of pre-crisis doctrines; and identifies the dangers of actions exceeding certain limits. The author also covers the foundations for a social science perspective of how to manage modern central banks, an approach that draws on a variety of disciplines including economics, governance theory and management. A few concrete rules of governance are offered by the researcher, built on the triptych of central banks' independence, accountability and composition, with specific focus placed on the process for selecting governors fit to handle the new role that modern central banks are destined to assume in developed countries

Aleksandra Szunke tries to identify the new paradigm of the role and place of the central bank in the financial system and its new responsibilities, aimed at countering financial instability.

We hope that you will enjoy reading the journal and in the future we will receive new papers, outlining the most important issues in the field of governance and regulation.

JOURNAL OF GOVERNANCE AND REGULATION

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Since the subject of corporate social responsibility (CSR) gained sufficient attention of the researchers over the last 25 years, numerous attempts were globally made to examine the nature of the relationship between the corporate social responsibility of company and its financial performance (FP). The literature in this area is scattered, the findings are heterogeneous and do not provide a clear answer if CSR goes beyond corporate storytelling. In our meta-analysis of more than 135 studies we try to bring a structure in this discussion. In analyzing the literature over the last decades we find a strong correlation between CSR and financial performance. Based on our findings we present implications in discussing how "good CSR" can be fostered. We focus on the financial sector.

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"No pains! No gains!" No enterprise can run without some risk exposure. The outcome of risk exposure may be negative or occasionally positive. Losses from a negative outcome may be mild and acceptable or huge and unacceptable, leading to closure and serious effects on society and the nation. Good risk management with identification, assessment and control of risks faced is part of good management. Planning against risk at enterprise/company, national and international levels are required. Some such exposures may do no harm, but present new business opportunities.
The present study involves an extensive review of available literature on risk management. A reputed textile company has been selected for case-study of performance in terms of risk management.

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Eric Pichet

The 2007-2008 financial crisis demonstrated both the responsibilities that central bankers, alongside other actors, bear for turbulences of this kind as well as how economics can be used to provide central bankers and governments with the understanding and tools that they need to prevent the international financial system from collapsing. At the same time, central banks' responses to the crisis have taken monetary policy into unknown territory. The paper's first section diagnoses good and bad practice in post-crisis central banking; assesses the efficiency of pre-crisis doctrines; and identifies the dangers of actions exceeding certain limits. It specifically focuses on the European Central Bank's much-debated intervention in certain peripheral bond markets, particularly Greece. The second section is more normative and lays the foundations for a social science perspective of how to manage modern central banks, an approach that draws on a variety of disciplines including economics, governance theory and management. This starts with a definition of the new doctrine and its underlying philosophy, followed by an identification of sound central banking practices (revolving around a few key concepts, notably inflation and financial stability). The missions and objectives of these practices are then defined (along with a choice of indicators), culminating in an exploration of which strategies and tools might be used in both normal and turbulent times. Lastly, a few concrete rules of governance are offered, built on the triptych of central banks' independence, accountability and composition, with specific focus placed on the process for selecting governors fit to handle the new role that modern central banks are destined to assume in developed countries.

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The changes in the modern monetary policy, which took place at the beginning of the twenty-first century, in response to the global financial crisis led to the transformation of the place and the role of central banks. The strategic aim of the central monetary institutions has become preventing financial instability. So far, central banks have defined financial stability as a public good, which took care independently of other monetary purposes (Pyka, 2010). Unconventional monetary policy resulted in changes the global central banking. The aim of the study is to identify a new paradigm of the role and place of the central bank in the financial system and its new responsibilities, aimed at countering financial instability.

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REPUTATION OF LOW-QUALITY BIG 4 AND NON-BIG 4 AUDITORS: EVIDENCE FROM AUDITOR SWITCHES OF FORMER CHUOAOYAMA CLIENTS

Hikaru Murase*, Shingo Numata**, Fumiko Takeda*

Abstract

We examine how an auditor's reputation for audit quality affects the selection of new auditors in a unique setting. Specifically, we investigate forced auditor switches after the collapse of ChuoAoyama and its successor, Misuzu, in a low litigation country, Japan, where the insurance value of auditing is minimal. We find that former ChuoAoyama clients with greater reputation concerns tended to switch away from Misuzu, a low-quality Big 4 audit firm. Our results also indicate that auditors' sensitivity to reputation decreased after the collapse of Misuzu, perhaps because of intensified capacity constraints and decreased differences in perceived audit quality between Big 4 and Non-Big 4 auditors after the audit scandal and the introduction of the J-SOX.*****

Keywords: Auditor Switch, Agency Cost, Reputation Loss

JEL classification: M42, G3

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1. Introduction

The purpose of this paper is to examine how an auditor's reputation for audit quality affects the selection of new auditors in a unique setting. Specifically, we investigate forced auditor switches after the collapse of ChuoAoyama and its successor, Misuzu, in a low litigation country, Japan.[1] With the minimal insurance value of auditing, the Japan setting is quite powerful for detecting the value of reputation for auditing. In addition, the setting of forced auditor switches provides us an opportunity to focus on the selection of new auditors, without considering the decisions regarding dismissal or resignation of the existing auditors.

The authors of other contemporary studies have also utilized the advantage of a low litigation environment to eliminate the insurance factor from determinants of the value of audit quality. For instance, Weber et al. (2008) investigate auditor switches in another low-litigation country, Germany. More recently, Numata and Takeda (2010) and Skinner and Srinivasan (2012) examine the effect of reputation loss of ChuoAoyama on market prices and auditor switches.[2] Although these studies provide evidence of the importance of an auditor's reputation for audit quality, our study takes a further step to investigate how concerns for reputation affect firms' selection of new auditors. In particular, we focus on whether firms concerned about reputation choose low-quality Big 4 or Non-Big 4 audit firms, and, by dividing our examination into three phases, we observe how the sensitivity to reputation changes over time.

Earlier studies in the U.S. have documented that the Big N auditors provide higher-quality audits than do the Non-Big 4 audit firms (DeAngelo 1981; Teoh

[1] During the period of our analysis, Japanese firms were not subjected to mandatory rotation of the audit firm or of the partner.

[2] Another related study is done by Hope and Langli (2010), which examine the relationship between auditor independence and audit fees in Norway with low litigation risk.

and Wong 1993) and thus receive a high-fee premium for their services (Francis and Wilson 1988; Simunic and Stein 1987; DeFond 1992). However, Chang et al. (2010) argue that this difference in perceived audit quality changed after 2004, because the demise of Arthur Andersen and the regulatory changes, including the Sarbanes-Oxley (US-SOX hereafter) 404 implementation, decreased differences in perceived audit quality between Big 4 and Non-Big 4 audit firms as well as intensifying capacity constraints. Chang et al. (2010) find relatively more positive stock price responses to the news about switches from a Big 4 audit firm to a smaller audit firm for the period between 2004 and 2006 than for the prior period.

Japan also experienced the collapse of Big 4 audit firms and the enactment of the so-called Japanese Sarbanes-Oxley Act (J-SOX hereafter) in 2006. This raises a conjecture that firms have become more receptive to Non-Big 4 audit firms than before, because of the intensified capacity constraints and the decreased gap in perceived audit quality between Big 4 and Non-Big 4 audit firms. The difference from the Enron/Andersen scandal is that two audit firms, Aarata and Misuzu, succeeded the troubled ChuoAoyama. While Aarata was supported by its global partner, PricewaterhouseCoopers (PwC hereafter), which helped to preserve its reputation for audit quality, Misuzu was regarded as a lower-quality Big 4 audit firm. Thus, in the present study, we examine how firms concerned about reputation tended to choose new auditors from among four choices, i.e., Aarata, Misuzu, the other Big 4 audit firms, and Non-Big 4 audit firms. Our analyses indirectly provide a hint to the question about whether PwC's attempt to save the reputation of Aarata was successful.

The setting for our analysis also corresponds to the forced auditor switches, used by Blouin et al. (2007). Blouin et al. (2007) take advantage of a unique setting created by the collapse of Arthur Andersen, which forced its clients to select new auditors. The forced auditor switches enable them to focus on the selection of new auditors without considering the decisions regarding dismissal or resignation of the existing auditors. In the present study, we use this same methodology to investigate a similar setting of forced auditor switches in Japan, which was created by the collapse of ChuoAoyama and its successor, Misuzu, after the revelation of their audit failures. The difference between our method and that of Blouin et al. (2007) lies in our inclusion of additional analysis of switches to Non-Big 4 audit firms in a low litigation environment, to eliminate an implicit insurance factor.

In sum, our objectives in the present study are threefold. First, we intend to determine how reputation for audit quality affects the selection of new auditors, when they are forced to change auditors in a low litigation environment. Second, we aim to learn how reputation factors affect new alignments with Big 4 or Non-Big 4 auditors. Third, we want to know whether these factors were changed by the intensified capacity constraints and the decreased differences in perceived audit quality between Big 4 and Non-Big 4 audit firms after the collapse of ChuoAoyama and Misuzu and the resulting introduction of the J-SOX. Our univariate analysis shows that former ChuoAoyama clients with greater reputation concerns tended to switch away from ChuoAoyama's successor, Misuzu, the low-quality Big 4 auditor. We also find that auditors' sensitivity to reputation decreased after the collapse of Misuzu.

The rest of this article is organized as follows. The next section provides background information on auditor switches from ChuoAoyama and Misuzu in Japan. Literature review and predictions are given in the third section. The fourth section describes the research design and data. The fifth section discusses the empirical results. Concluding remarks are provided in the sixth section.

2. Auditor switches from ChuoAyama / Misuzu

This section briefly describes the background information on accounting scandals involving ChuoAoyama and its successor, Misuzu.[3] ChuoAoyama was one of Japan's Big 4 audit firms, which audited a number of big-name clients, including Toyota, Sony, and Nippon Steel Corporation, and joined the global network of PwC. ChuoAoyama's collapse was directly related to the accounting fraud committed by its client, Kanebo, a large manufacturer of cosmetics and textiles in Japan. This scandal was comparable to the U.S. Enron scandal in size and social impact.

In October 2004, Kanebo reported that former executives had committed accounting fraud from April 2001 to March 2003. In April 2005, Kanebo admitted having falsified financial statements over a period of 5 fiscal years (FYs) ending in March 2004 by exaggerating its earnings improperly by 215 billion yen, a historical high. The objective of the fraud was to avoid bankruptcy, because Kanebo had excess liability, amounting to approximately 250 billion yen in FY 1998.

The involved Kanebo executives were arrested and indicted. Three former executives including the former president were arrested in July 2005 for their violation of the Securities Exchange Law. In addition, four ChuoAoyama accountants, who helped the former Kanebo executives to cover up the losses and certified Kanebo's misrepresented financial reports, were arrested in September 2005. The Tokyo District Court sentenced the former president to two years' imprisonment and three years' probation in October

[3] Numata and Takeda (2010) and Skinner and Srinivasan (2012) provide more detailed information on the ChuoAoyama scandal.

2005. The Court also sentenced the former vice president and three accountants to 1.5 years' imprisonment and 3 years' probation in March 2006.

Unlike Arthur Andersen, ChuoAoyama itself was exempt from criminal charges (Although Arthur Andersen was originally found guilty of criminal charges, the verdict was subsequently overturned by the Supreme Court in 2005). However, in May 2006, the Financial Service Agency (FSA) deregistered the arrested accountants and ordered the suspension of ChuoAoyama's statutory auditing service for two months starting in July. This was the first time that a major audit firm in Japan was ordered to suspend its core auditing business. This order accelerated auditor switches of ChuoAoyama clients to rival companies.

At that time, PwC, ChuoAoyama's affiliate in the U.S., was deeply concerned about the reputation loss of its global partner and helped approximately 900 of ChuoAoyama's accountants to establish a new company named PwC Aarata in June 2006. The remaining ChuoAoyama changed its name to Misuzu in September 2006, but terminated its operation in July 2007 after the revelation in December 2006 of another accounting fraud, this time involving the Nikko Cordial Corporation.

The high-profile accounting scandals in Japan generated discussion on reinforcing corporate governance and the accounting profession. To restore investors' confidence and regulate internal control over financial reporting, the Japanese Diet passed a bill in June 2006 called the Financial Instruments and Exchange Law (FIEL), which included the so-called the Japanese Sarbanes-Oxley Act (J-SOX). Similar to the US-SOX, the J-SOX required listed firms to submit internal control reports from the fiscal year starting in April 2008.

The collapse of Big 4 audit firms and the enactment of the J-SOX raise a conjecture that firms have become more receptive to Non-Big 4 audit firms than before, because of the intensified capacity constraints and the decreased gap in perceived audit quality between Big 4 and Non-Big 4 audit firms. We note that two audit firms, Aarata and Misuzu, succeeded the troubled ChuoAoyama. While Aarata was supported by its global partner, PwC, which helped to preserve its reputation for audit quality, Misuzu was regarded as providing lower-quality audit services. By examining how firms concerned about reputation selected new auditors, we also consider whether PwC's attempt to save the reputation of Aarata was successful.

To see how the collapse of two big audit firms affected market structure of the audit industry, Table 1 provides a descriptive analysis of changes in the market share of the Japanese audit market between spring 2004 and spring 2008 (To be more precise, the FIEL, or the J-SOX, incorporates the Amendment of the Securities and Exchange Law, which was approved and enacted at the 164th Diet session on June 7, 2006 and promulgated on June 14, 2006. Please refer to Seino and Takeda (2009) for the background information on the introduction of the Japanese Sarbanes-Oxley Act of 2006). Before the collapse of ChuoAoyama, the Big 4 auditors (with their affiliations to the worldwide audit networks) were Azsa (KPMG), Tohmatsu (Deloitte), ShinNihon (Ernst & Young) and ChuoAoyama (PwC).

Table 1. Distribution of listed companies across time

This table shows the number of all listed clients of Big 4 and Non-Big 4 audit firms in Japan for the period between 2004 and 2008. Big 4 auditors refer to the following audit firms (with their affiliations with Big 4 audit networks worldwide) - Azsa (KPMG), Tohmatsu (Deloitte), ShinNihon (Ernst & Young), and ChuoAoyama/Misuzu/Aarata (PwC). Non Big 4 auditors are all the other audit firms.

	2004		2005		2006		2007		2008	
	Number	Share	Number	Share	Number	Share	Number	Share	Number	Share
Azsa	612	(16.8%)	630	(16.8%)	668	(17.5%)	730	(18.5%)	825	(20.9%)
Tohmatsu	809	(22.2%)	852	(22.8%)	863	(22.6%)	921	(23.4%)	1,001	(25.4%)
ShinNihon	793	(21.7%)	802	(21.4%)	827	(21.6%)	895	(22.7%)	1,122	(28.5%)
ChuoAoyama	788	(21.6%)	812	(21.7%)	829	(21.7%)	0	(0.0%)	0	(0.0%)
Misuzu	0	(0.0%)	0	(0.0%)	0	(0.0%)	579	(14.7%)	0	(0.0%)
Aarata	0	(0.0%)	0	(0.0%)	0	(0.0%)	72	(1.8%)	88	(2.2%)
(less: multiple auditors)	8	(0.2%)	4	(0.1%)	3	(0.1%)	7	(0.2%)	1	(0.0%)
Big 4 auditors	2,994	(82.0%)	3,092	(82.6%)	3,184	(83.3%)	3,190	(81.0%)	3,035	(77.0%)
Non-Big 4 auditors	655	(18.0%)	651	(17.4%)	640	(16.7%)	749	(19.0%)	907	(23.0%)
All listed companies	3,649	(100.0%)	3,743	(100.0%)	3,824	(100.0%)	3,939	(100.0%)	3,942	(100.0%)

Note: This table is based on spring issues of *Japan Company Handbook* between 2004 and 2008.

For the period between spring 2004 and spring 2006, ChuoAoyama's share of the auditors' market was stable at around 21 percent, despite the revelation of Kanebo's accounting fraud. After the collapse of ChuoAoyama, in spring 2007, Misuzu's share was 14.7 percent, while Aarata's share was only 1.8 percent. Clearly, Misuzu and Aarata did not gain all of the former ChuoAoyama clients, and both the other Big 4 auditors and Non-Big 4 auditors increased their shares. The increase in market share of the other Big 4 auditors and Non-Big 4 auditors continued in spring 2008, after the collapse of Misuzu.

Table 2 provides another descriptive analysis that shows auditor switches among Japanese auditors for the period between spring 2004 and spring 2008. Before the collapse of ChuoAoyama, the number of ChuoAoyama clients that changed auditors was only 30 from spring 2004 to spring 2006. During the period between spring 2006 and spring 2007, Misuzu and Aarata accepted 541 and 71 former ChuoAoyama clients, respectively (66.4 percent and 8.7 percent of all former ChuoAoyama clients, respectively). The other Big 4 auditors accepted 138 former ChuoAoyama clients (16.9 percent), while Non-Big 4 auditors accepted 65 former ChuoAoyama clients (8.0 percent) (A total of 815 clients left ChuoAoyama, which is fewer than the total of 829 listed in Table 1. The difference corresponds to the number of firms delisted from spring 2006 to spring 2007). After the collapse of Misuzu, the other Big 4 auditors accepted 438 former Misuzu clients (77.2 percent), while Non-Big 4 auditors accepted 120 former Misuzu clients (21.2 percent) (A total of 567 clients left Misuzu, which is fewer than the total of 579 listed in Table 1. The difference corresponds to the number of firms delisted from spring 2007 to spring 2008). In sum, Tables 1 and 2 provide evidence for a significant migration of former ChuoAoyama clients to Non-Big 4 audit firms as well as to the other Big 4 audit firms.

Table 2. Japanese auditor changes across time

This table shows the number of all listed clients that changed auditors in Japan for the period between 2004 and 2008.

2004→05	From / To	Azsa	Tohmatsu	ShinNihon	ChuoAoyama	Non-Big 4 auditors	Sum
	Azsa		7	3	1	3	14
	Tohmatsu	5		1	5	3	14
	ShinNihon	1	2		3	5	11
	ChuoAoyama	4	3	0		3	10
	Non-Big 4 auditors	5	1	9	5	16	36
	Sum	15	13	13	14	30	85

2005→06	From / To	Azsa	Tohmatsu	ShinNihon	ChuoAoyama	Non-Big 4 auditors	Sum
	Azsa		0	3	2	1	6
	Tohmatsu	10		2	4	6	22
	ShinNihon	5	3		1	3	12
	ChuoAoyama	4	4	4		8	20
	Non-Big 4 auditors	7	4	8	4	25	48
	Sum	26	11	17	11	43	108

2006→07	From / To	Azsa	Tohmatsu	ShinNihon	Misuzu	Aarata	Non-Big 4 auditors	Sum
	Azsa		2	4	1	0	21	28
	Tohmatsu	7		7	0	0	11	25
	ShinNihon	4	8		0	0	15	27
	ChuoAoyama	50	34	54	541	71	65	815
	Non-Big 4 auditors	3	6	0	0	0	26	35
	Sum	64	50	65	542	71	138	930

2007→08	From / To	Azsa	Tohmatsu	ShinNihon	Aarata	Non-Big 4 auditors	Sum
	Azsa		3	2	3	31	39
	Tohmatsu	5		4	0	20	29
	ShinNihon	7	3		2	27	39
	Misuzu	101	95	242	9	120	567
	Aarata	0	1	0		2	3
	Non-Big 4 auditors	14	7	16	1	70	108
	Sum	127	109	264	15	270	785

Note: This table is based on spring issues of *Japan Company Handbook* between 2004 and 2008.

3. Literature review and hypotheses

3.1 Literature Review

Prior studies state that the value of audit quality is based on two competing hypotheses: reputation hypothesis and insurance hypothesis. Under the reputation hypothesis, the value of audit quality is related to monitoring and certifying services provided by auditors to mitigate agency problems among stakeholders. Under the insurance hypothesis, auditors are motivated to provide high-quality service to avoid legal liabilities (Simunic 1980; Dye 1993).

There are two lines of research that investigates factors affecting the value of audit quality. The first line of studies rests on the assumption that large auditors provide better audit quality and thus enjoy better reputations than small auditors (Balvers et al. 1988; Beatty 1989; Clarkson and Simunic 1994; Datar et al. 1991; Teoh and Wong 1993). However, both the reputation hypothesis and the insurance hypothesis can explain a positive correlation between auditor size and audit quality, because large auditors are expected to provide more coverage in the event of litigation than small auditors (Willenborg 1999). To eliminate the reputation factor, Willenborg (1999) focuses on start-up company IPOs and provided evidence to support the insurance hypothesis.

The second line of research takes advantage of a unique setting caused by well-known accounting

scandals including the Laventhol and Horwath (L&H) bankruptcy in 1990 and the Enron/Andersen scandal in 2001, which have provided the opportunity to detect the effect of deteriorating auditor quality on economic value (Menon and Williams 1994; Baber et al. 1995; Chaney and Philipich 2002; Barton et al. 2005; Krishnamurthy et al. 2006; Rauterkus et al. 2005; Cahan et al. 2010). It should be noted, however, that both the reputation loss of auditors and reduced insurance coverage provided by the auditor could lower the economic value of auditing, which is measured by stock returns after the accounting scandals or associated with auditor switches.

Recently, several studies have attempted to control insurance factors to detect reputation factors. For instance, Krishnamurthy et al. (2006) examine the stock price reactions of former Andersen clients to the replacement of Andersen with other auditors. They find a negative return when a poorer-quality auditor was selected as a new auditor, indicating that this negative return was not due to the lost insurance value but rather to the lost reputation. In addition, Weber et al. (2008) control for the insurance factor by using the case of the KPMG/ComROAD AG scandal in a low-litigation country, Germany, and conclud that auditor reputation loss played an important role in auditor switches and negative stock returns of former clients.

In a similar manner, by utilizing a low litigation setting in Japan, Numata and Takeda (2010) and Skinner and Srinivasan (2010) describe the effect of reputation loss of ChuoAoyama on market prices and auditor switches. Although these studies provide evidence of the importance of an auditor's reputation for audit quality, our study takes a further step to investigate how concerns for reputation affect firms' selection of new auditors. In particular, we focus on whether firms concerned about reputation choose low-quality Big 4 or Non-Big 4 audit firms, and, by dividing our examination into three phases, we observe how the sensitivity to reputation changes over time.

As discussed earlier, prior studies in the U.S. have documented that the Big N auditors provide higher-quality audits than do the Non-Big 4 audit firms (DeAngelo 1981; Teoh and Wong 1993) and thus receive a high-fee premium for their services (Francis and Wilson 1988; Simunic and Stein 1987; DeFond 1992). However, recent studies have questioned this difference in perceived audit quality. For instance, Chang et al. (2010) report relatively more positive stock price responses to the news about switches from a Big 4 audit firm to a smaller audit firm for the period between 2004 and 2006 than for the prior period. They argue that such change was caused by decreased differences in perceived audit quality between Big 4 and Non-Big 4 audit firms as well as intensified capacity constraints after the demise of Arthur Andersen and the regulatory changes, including the Sarbanes-Oxley 404 implementation.[4]

We believe that the question posed by Chang et al. (2010) is important in the Japanese case, too, because Japan also experienced the collapse of Big 4 audit firms and the enactment of the J-SOX in 2006. This may have intensified capacity constraints and decreased the gap in the perceived audit quality between Big 4 and Non-Big 4 audit firms. As a result, firms may have become more receptive to Non-Big 4 audit firms than they had been before 2006. Because two audit firms, Aarata and Misuzu, succeeded to the troubled ChuoAoyama, it should be especially interesting to examine whether firms less concerned about reputation selected a new auditor from among these two firms or Non-Big 4 audit firms.

Our setting also corresponds to the forced auditor switches, used by Blouin et al. (2007). Conventional wisdom states that auditor switches involve two actions: dismissal or resignation of the present auditor and the selection of a new auditor. The authors of many prior studies have examined which firm characteristics are associated with auditor switches (Johnson and Lys 1990; Krishnan and Krishnan 1997; Shu 2000; Blouin et al. 2007; Chen and Zhou 2007; Landsman et al. 2009). Although some of them focus on factors that affect the joint decision of firing and hiring auditors, others attempt to disentangle the two decisions. For instance, Krishnan and Krishnan (1997) treat auditor resignations and dismissals as two separate decisions. Chen and Zhou (2007) focus on dismissal of former Andersen clients by examining the role of audit committees, which enabled them to differentiate the timing of auditor dismissal and the choice of new auditors.

Alternatively, Blouin et al. (2007) take advantage of a unique setting created by the collapse of Arthur Andersen, which forced its clients to select a new auditor. The forced auditor switches enabled them to focus on selection of new auditors without considering the decisions regarding dismissal or resignation of the existing auditors. They found that firms with larger agency costs were more likely to switch auditors, while those with larger switching costs were more likely to follow their former auditor. In the present study, we follow the methodology of Blouin et al. (2007) by investigating a similar setting of forced auditor switches in Japan, which was created by the collapse of ChuoAoyama and its successor, Misuzu, after the revelation of their audit failures.

[4] Related literature in the U.S. is the work by Landsman et al. (2009), which examine auditor switches to and from the Big 4 auditors in the pre- and post-Andersen scandal. They find a decrease in the sensitivity to client risk as well as an increase in the sensitivity to client misalignment, concluding that Big 4 auditors attempted to rebalance their client portfolios in response to post-Andersen capacity constraints caused by the supply of former Andersen clients, without adjusting their sensitivity to client risk.

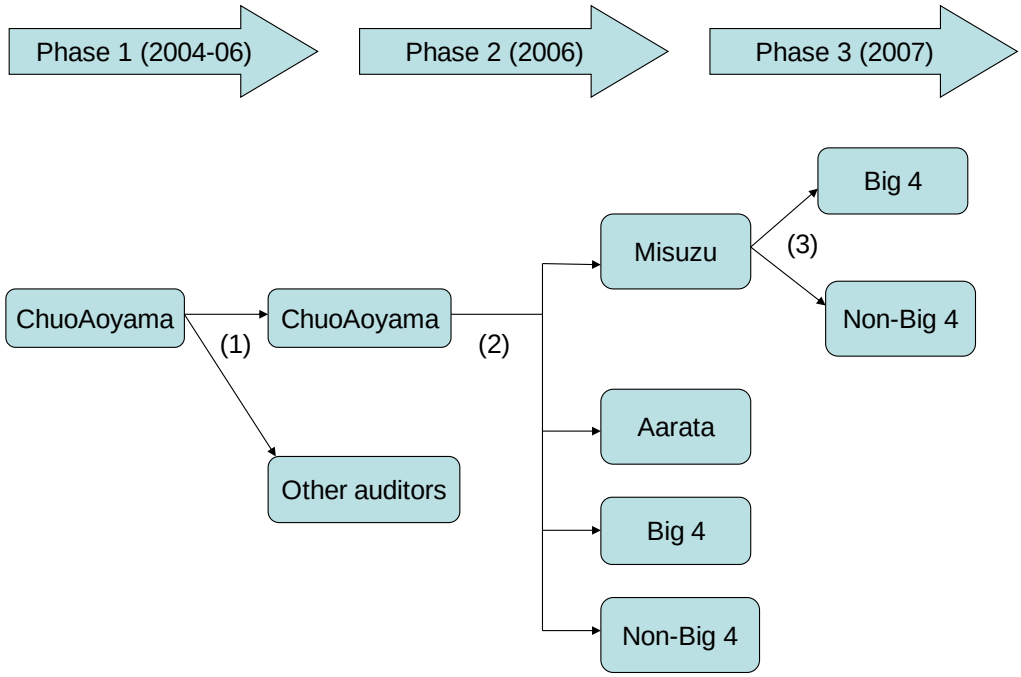
The difference from Blouin et al. (2007) lies in our unique setting of a low-litigation country. Blouin et al. (2007) only investigate switches to the remaining Big 4 auditors. This allowed them to focus on agency and switching costs involved in the selection of a new auditor, by eliminating an implicit insurance factor that might have been associated with switches to a Non-Big 4 auditor. In the present study, we take advantage of a low litigation setting in Japan, which allows us to investigate not only switches to the other Big 4 auditors but also switches to Non-Big 4 auditors, without considering the insurance factor.

In sum, our contributions come mainly from two sources, that is, the focus on forced auditor switches to Big 4 and Non-Big 4 audit firms and the comparison of three periods related to the ChuoAoyama scandal. The comparison of three periods is expected to provide insights into how the change in environment affected firms' sensitivity to reputation factors.

3.2 Hypotheses development

To investigate how reputation for audit quality affects selection of new auditors, we focus on auditor changes in three periods associated with the collapse of ChuoAoyama and Misuzu. Figure 1 presents a summary of three phases. The first phase (Phase 1) is the reference period between spring 2004 and spring 2006, when ChuoAoyama's audit failure was revealed and a number of its clients changed auditors voluntarily (More detailed explanation of each period is provided in the fourth section). The second phase (Phase 2) is between summer and autumn 2006, when ChuoAoyama clients were forced to change auditors. The third phase (Phase 3) is between summer and autumn 2007, when Misuzu clients were forced to change auditors.

Figure 1. Timeline of the analysis



In the subsequent sections, we examine the following options faced by a group of former ChuoAoyama clients and attempt to clarify how these actions are related to clients' reputation factors:

Phase	Group of clients	Options
1	All ChuoAoyama clients	(1) ChuoAoyama, or (2) Other auditors.*
2	All ChuoAoyama clients	(1) The other Big 4 audit firms, (2) Non-Big 4 audit firms, (3) Aarata, or (4) Misuzu.
3	All Misuzu clients	(1) The other Big 4 audit firms or (2) Non-Big 4 audit firms

Note: We include Aarata in the Big 4 audit firms in Phase 3, rather than examine Aarata separately, because very few firms switched away from Misuzu to Aarata in Phase 3, as shown in Table 2.

* We combine both the other Big 4 and Non-Big 4 audit firms in the category "other auditors" in Phase 1 because very few firms switched away from ChuoAoyama in Phase 1, as shown in Table 2.

Economic theory suggests that profit-maximizing firms attempt to minimize potential costs arising from the reputation loss of audit firms when selecting a new auditor. This indicates that firms with greater reputation concerns tended to change auditors in Phase 1, because audit failure damaged the reputation of ChuoAoyama. In Phase 3, firms with greater reputation concerns were more likely to choose Big 4 audit firms as their new auditors, because Big 4 auditors are regarded providing higher-quality audit services than Non-Big 4 auditors. Thus, our hypotheses for Phases 1 and 3 are as follows:

In contrast, predictions for Phase 2 need more careful examination. In Phase 2, former ChuoAoyama clients faced four options: the other Big 4 audit firms, Non-Big 4 audit firms, Aarata, or Misuzu. We reasonably assume that reputation for audit quality was the highest for the other Big 4 audit firms, while it was the lowest for Misuzu, a main successor of ChuoAoyama with no help from PwC. Between these two companies we conjecture that Aarata's reputation is higher than that of Non-Big 4 audit firms, because Aarata is backed up by PwC to keep reputation for high-quality audit. Skinner and Srinivasan (2010) also characterize Aarata as the high-quality spin-off. In sum, our hypotheses regarding the relationship between auditor switches and auditor reputation are as follows:

Hypothesis 1: *Former ChuoAoyama clients with greater reputation concerns tended to change auditors in Phase 1.*

Hypothesis 2: *Former ChuoAoyama clients with greater reputation concerns were likely to switch to the other Big 4 auditors as their first choice, Aarata as their second choice, Non-Big 4 audit firms as their third choice, and Misuzu as their last choice in Phase 2.*

Hypothesis 3: *Former Misuzu clients with greater reputation concerns tended to switch to Big4 audit firms than Non-Big 4 audit firms in Phase 3.*

The effect of reputation factors on auditor switches may have changed over time. We predict that reputation factors would have more greatly affected the auditor switches of former ChuoAoyama clients in Phase 2 than in Phase 1. As seen in Table 2, most of the former ChuoAoyama clients did not change auditors in Phase 1, indicating that many clients were not aware of the severity of the events. In addition, the effect of reputation factors on auditor switches is predicted to have been smaller in Phase 3 than in Phase 2, because of the heightened capacity constraints and decreased differences in perceived audit quality between Big 4 and Non-Big 4 auditors after the ChuoAoyama scandal and the introduction of the J-SOX, even though these events were likely to increase the demand for quality audit services at the same time. The latter prediction follows the results of Chang et al. (2010) that argue that the demise of Arthur Andersen and the enactment of the US-SOX decreased differences in perceived audit quality between Big N and Non-Big N audit firms.

Hypothesis 4: *Reputation factors would have more greatly affected the auditor switches of former ChuoAoyama clients in Phase 2 than in Phases 1 and 3.*

4. Research design and data

4.1 Research design

To examine how reputation factors affected the choice of auditors, we employ both univariate and multivariate analyses. We first compare several variables that represent firm characteristics among groups of firms. Our choice of variables is based on prior literature on auditor switches and corporate governance. The summary of variable definitions is presented in the Appendix.

Our target variables are the first four variables, namely, *Emerging*, *Foreign*, *Size*, and *Leverage*, which are associated with reputation factors. *Emerging* is a dummy variable, which takes 1 if the client is listed on an emerging stock exchange, including JASDAQ, Mothers, and Heracles, and 0 otherwise. These stock exchanges list mainly venture and small- and medium-sized firms in Japan. Unlike established firms listed on major stock exchanges, such as the Tokyo Stock Exchange, firms listed on the emerging stock exchanges are obliged to keep less strict regulations and thus are more likely to be considered risky by large audit firms. Thus, we expect that firms listed on emerging stock exchanges would have been less likely to change auditors in Phase 1. When they changed auditors, they would have been less likely to switch to auditors with high reputation in Phases 2 and 3.

Foreign is the percentage of foreign shareholders among total shareholders. Ahmadjian and Robbins (2005) report that for the period between 1990 and 2000, the ownership of foreign investors in Japanese shares increased from 4.2% to 13.2%. Foreign shareholders are considered to have larger influence on auditing and accounting practices in Japan than domestic shareholders, because foreign shareholders tend to demand more transparency in accounting presentation and independent audits than domestic investors. This indicates that firms with high ratios of foreign shareholders are expected to be more concerned about the potential reputation loss of their audit firm.[5] Thus, we expect that firms with foreign shareholders' ratio would have been more likely to change auditors in Phase 1. When they changed auditors, they would have been more likely to choose auditors with high reputation in Phases 2 and 3.

[5] Numata and Takeda (2010) find that negative market reactions to the audit failure of ChuoAoyama were mitigated if firms have a high foreign shareholders' ratio.

Size is defined as the natural logarithm of total assets. This variable is often used as a proxy for reputation factors.[6] Large firms could be reasonably assumed to have more agency conflicts than small firms and therefore be more concerned about the reputation loss of their audit firm, because they depend more on certification issued by their auditors to mitigate agency conflicts. Blouin et al. (2007) show that large firms tended to change auditors in the post-conviction date of Arthur Andersen. Thus, we expect that large firms would have been more likely to change auditors in Phase 1. When they changed auditors, they would have been more likely to choose auditors with high reputation in Phases 2 and 3.

Leverage is defined as total debts divided by total assets. In prior accounting and finance literature in the U.S., *Leverage* is also used to capture agency conflicts between shareholders and debt holders and thus agency costs arising from monitoring by debt holders (Barton 2005; Blouin et al. 2007). To reduce agency costs firms with high leverage ratio are expected to depend more on certification issued by their auditors, and thus be more concerned about the reputation of audit firms. Thus, we expect that firms with high leverage ratio would have been more likely to change auditors in Phase 1. When they changed auditors, they would have been more likely to choose auditors with high reputation in Phases 2 and 3.

The other variables are included as they capture other factors that are likely o affect the choice of auditors. *Accrual* and *Clients* are proxies for switching costs. Following Blouin et al. (2007), we regard switching costs as "the start-up costs incurred by the client for a new audit engagement. These include: (1) costs incurred by the clients in educating the auditor about the company's operations, systems, financial reporting practices, and accounting issues, (2) costs incurred by the clients in selecting a new auditor, and (3) an increased risk of audit failure."

Accrual is calculated by deleting operating cash flow from the sum of net income and extraordinary income/losses, divided by total assets. Firms with high *Accrual* are more aggressive in financial reporting and thus are expected to reduce switching costs by maintaining their relationship with incumbent auditors. Based on the different measure of accruals defined by Jones (1991), Blouin et al. (2007) find that firms with lower accrual changed auditors more frequently, after the Andersen collapse. Bradshaw et al. (2001) also show that auditor changes are less likely for high accrual firms.[7] Thus, we expect that firms with high *Accrual* would have been less likely to change auditors in Phase 1. When they changed auditors, they would have been more likely to choose Misuzu or Aarata in Phases 2 and 3.

Clients is a dummy variable, which takes 1 if ChuoAoyama had the most clients in an industry, and 0 otherwise. This variable shows the area of industry in which ChuoAoyama might have had more expertise than other audit firms. We regard firms with large *Clients* as firms that have high switching costs. Blouin et al. (2007) report a positive relation between following Andersen and *Clients*. Thus, we expect that firms with large *Clients* would have been less likely to change auditors in Phase 1. When they changed auditors, they would have been more likely to choose Misuzu or Aarata in Phases 2 and 3.

The next three variables – *AssetGrowth*, *SalesGrowth*, and *Invrec* – are associated with audit risk. Following Johnston (2000), we regard audit risk as "the risk that the auditor may unknownly fail to appropriately modify his opinion on financial statements that are materially misstated," which is proxied by internal control risk. *AssetGrowth* and *SalesGrowth* are rates of change in assets and sales, respectively. A high growth rate of assets or sales may result from accounting manipulation of firms with poor internal control systems. *Invrec* is defined as the sum of inventories and accounts receivable, divided by total assets. Following Dopuch et al. (1987), Krishnan (1994), and Landsman et al. (2009), we expect that firms with high *Invrec* would have high audit risk. Large inventories or accounts receivables may also result from accounting manipulation. We expect that former ChuoAoyama clients with high audit risk would have been less likely to change auditors in Phase 1. We also expect that former ChuoAoyama or Misuzu clients with high audit risk would have been less likely to switch to the other Big 4 auditors, because the other Big 4 auditors are expected to be more eager to avoid risk that may lead to reputation loss.[8]

The remaining four variables – *Cash*, *ROA*, *Loss*, and *MB* – are associated with a firm's financial risk.[9] *Cash* and *ROA* are the firm's cash and net income divided by total assets. *Loss* is a dummy

[6] Blouin et al. (2007) also consider the possibility that Size proxies switching costs. If this is the case, the sign of coefficients of Size should be opposite to our prediction, because switching costs are expected to be higher for larger clients. However, as revealed in the fifth section, our empirical results are consistent with the idea that Size is a proxy of reputation factors in Phase 2.

[7] Alternatively, DeFond and Subramanyam (1998) report that firms changing auditors have negative discretionary accruals, because auditors prefer conservative accounting choices to reduce litigation risk. Because Japan is a low-litigation country, this incentive of auditors could be minimal.

[8] One may think that there is no reason for Big 4 auditors to avoid high-risk clients in a low-litigation country such as Japan. It is true that the authors of many prior studies assume that the clients' risk is associated with the likelihood of litigation, which makes auditors reconsider the engagement with high-risk clients (Krishnan and Krishnan 1997; Jones and Raghunandan 1998; Shu 2000; Choi et al 2004; Laux and Newman 2010). Alternatively, however, Johnstone (2000) considers engagement profitability as the key component of the auditor's risk of loss upon auditor engagement, which is not necessarily associated with the litigation risk. Thus, even in Japan, known as a low-litigation country, we expect that assessment of clients' risk is important for decision-making regarding auditors,

[9] Johnston (2000) defines financial risk as "the risk that a potential client's economic condition will deteriorate."

variable, which takes 1 if *ROA<0*, and 0 otherwise. *MB* is a market to book ratio, which represents growth prospects of a firm's value. Firms with high financial risk are considered to be less profitable than those with low financial risk. We expect that firms with high financial risk would have been less likely to change auditors in Phase 1. When they changed auditors, they would have been less likely to switch to the other Big 4 auditors in Phases 2 and 3, because the other Big 4 auditors are expected to be more eager to avoid risk that may lead to reputation loss.

After conducting univariate analysis, we then proceed to multivariate analysis. We model the decision to change auditors as a function of variables that capture the degree of a firm's reputation concerns and other control variables. The first binary logistic regression investigates firms' decisions to switch away from ChuoAoyama or follow ChuoAoyama in Phase 1, by using the indicator variable *Change2004*, which takes 1 if the clients moved away from ChuoAoyama and 0 otherwise, as a dependent variable.

The second ordered logistic regression investigates firms' decisions in Phase 2, by using the indicator variable *Change2006*, which takes 3 if the client switched to the other Big 4 audit firms, 2 if switched to Aarata, 1 if switched to Non-Big4 audit firms, and 0 if switched to Misuzu, as a dependent variable (Change2006 is constructed according to our Hypothesis 2). The last binary logistic regression examines firms' decisions to choose the other Big 4 audit firm in Phase 3, by using the indicator variable *Change 2007*, which takes 1 if the client chose the other Big 4 audit firm, and otherwise.

4.2 Data and sample selection

We rely on *Kaisha Shikiho* (*Japan Company Handbook*) CD-ROMs to obtain the data. *Japan Company Handbook* contains major company data, including auditors' names and financial data of all listed firms in Japan. We identify auditor switches when auditors' names are different between two periods (Skinner and Srinivasan (2012) analyze the auditor signatory data and find that between FY2005 and FY2006, 85 percent of Misuzu clients had signatories in common with the FY 2005 ChuoAoyama audits, 76 percent Aarata clients had signatories in common, and none of the other audit firms had any signatories in common. This indicates that most of the clients moving to Misuzu or Aarata follow their audit teams, while those moving to the other audit firms did not). Samples for Phase 1 are based on *Japan Company Handbook* issued in spring 2004 and spring 2005. Samples for Phase 2 are based on *Japan Company Handbook* issued in summer and autumn 2006. Samples for Phase 3 are based on *Japan Company Handbook* issued in summer and autumn 2007.

More precisely, the *Japan Company Handbook* CD-ROMs are issued quarterly - spring (March 15), summer (June 15), autumn (September 15), and winter (December 15). In other words, Phase 1 corresponds to the period between March 15, 2004 and March 15, 2006, that is, the period prior to the FSA's penalty, which was announced in May 10, 2006 and was imposed in July 1, 2006. Likewise, Phase 2 corresponds to the period between June 15 and September 15, 2006, while Phase 3 corresponds to the period between June 15 and September 15, 2007.

It is important to note that the majority of Japanese listed firms employs a fiscal year ending in March and hosts an annual shareholders meeting in the end of June, where auditor switches need to be approved, if any. In other words, Phases 2 and 3 correspond to the timing of the shareholders meetings for most of the listed firms. It is also important that Phase 2 includes the period of suspension of ChuoAoyama's auditing services, which was between July 1 and September 1, 2006, when many ChuoAoyama clients were forced to appoint an interim auditor and then moved to Misuzu or other audit firms after the end of the suspension, i.e., September 1, 2006 (Unlike Skinner and Srinivasan (2012), we do not differentiate the sample data based on the interim auditor. Our data simply show auditors before and after the period of the suspension. It is also worth noting that not a few firms did not appoint an interim auditor and just moved to Misuzu on September 1, 2006).

Table 3 shows the sample selection process. Panels A to C correspond to Phases 1 to 3, respectively.

Table 3. Sample selection process

Panels A to C show the sample selection process for Phases 1 to 3.

Panel A: Sample selection for Phase 1

	Total	ChuoAoyama	Other auditors
Listed firms audited by ChuoAoyama	744	719	25
less: firms without consolidated statements,			
prior statements, and other financial variables	211	200	11
Final sample	533	519	14

Panel: B: Sample selection for Phase 2

	Total	Misuzu	Aarata	Big 4	Non-Big 4
Listed firms audited by ChuoAoyama	721	525	71	125	94
less: firms without consolidated statements,					
prior statements, and other financial variables	122	140	17	36	23
Final sample	599	385	54	89	71

Panel: C: Sample selection for Phase 3

	Total	Big 4	Non-Big 4
Listed firms audited by Misuzu	537	426	111
less: firms without consolidated statements,			
prior statements, and other financial variables	140	111	29
Final sample	397	315	82
Note: Aarata is included in Big 4.			

For Phase 1, we first make a list of ChuoAoyama clients. The initial sample of the listed ChuoAoyama clients consists of 744 firms, of which 719 firms followed ChuoAoyama, while 25 firms switched auditors. We then eliminate the following firms: (1) firms without consolidated statements, (2) firms without prior statements, and (3) firms lacking other financial variables for logistic analysis. The final sample consists of 533 client firms of which 519 firms followed ChuoAoyama, while 14 firms switched auditors.

For Phase 2, our initial sample consists of 815 listed ChuoAoyama clients, of which 596 firms moved to Misuzu or Aarata, while 125 firms switched to the other Big 4 audit firms and 94 firms switched to Non-Big 4 auditors. The same elimination process gives the final sample, consisting of 599 client firms, of which 439 firms moved to Misuzu or Aarata, while 71 firms switched to the other Big 4 audit firms and 89 firms switched to Non-Big 4 auditors.

For Phase 3, we first make a list of Misuzu clients. The initial sample was 537 listed Misuzu clients, of which 426 firms switched to the other Big 4 auditors, while 111 firms switched to Non-Big 4 auditors. The same elimination process gives the final sample, consisting of 397 client firms, of which 315 firms switched to the other Big 4 audit firms and 82 firms switched to Non-Big 4 auditors.

Table 4. Descriptive statistics of regression variables

Panel A: Descriptive statistics of variables for Phase 1

	Emerging	*Foreign*	*Size*	*Leverage*	*Accrual*	*Clients*	*AssetGrowth*	*SalesGrowth*	*Invrec*	*Cash*	*ROA*	*Loss*	*MB*
Mean	0.26	5.76	10.65	0.55	-0.03	0.16	-0.01	0.03	0.34	0.15	0.01	0.26	1.22
Median	0.00	1.90	10.42	0.57	-0.03	0.00	-0.02	0.01	0.33	0.11	0.01	0.00	0.76
Maximum	1.00	65.80	15.94	1.00	0.48	1.00	1.05	0.88	0.91	0.82	0.51	1.00	51.65
Minimum	0.00	0.00	7.18	0.02	-0.46	0.00	-0.63	-0.73	0.01	0.00	-0.82	0.00	0.09
Std. Dev.	0.44	8.63	1.53	0.22	0.07	0.37	0.15	0.14	0.17	0.12	0.07	0.44	2.73
Skewness	1.10	2.51	0.65	-0.17	0.40	1.86	2.18	0.90	0.45	1.98	-3.60	1.08	14.25
Kurtosis	2.21	11.84	3.34	2.26	15.04	4.46	15.38	11.03	3.15	8.02	43.04	2.16	243.57
Observations	533	533	533	533	533	533	533	533	533	533	533	533	533

Panel B: Descriptive statistics of variables for Phase 2

	Emerging	*Foreign*	*Size*	*Leverage*	*Accrual*	*Clients*	*AssetGrowth*	*SalesGrowth*	*Invrec*	*Cash*	*ROA*	*Loss*	*MB*
Mean	0.27	9.75	10.74	0.53	-0.01	0.17	0.14	0.11	0.35	0.15	0.03	0.13	2.45
Median	0.00	6.20	10.51	0.54	-0.02	0.00	0.06	0.06	0.34	0.11	0.03	0.00	1.53
Maximum	1.00	62.60	17.17	1.02	0.44	1.00	6.24	2.17	0.91	0.74	0.56	1.00	63.43
Minimum	0.00	0.00	6.85	0.05	-0.31	0.00	-0.53	-0.35	0.02	0.00	-1.02	0.00	-13.87
Std. Dev.	0.44	10.67	1.60	0.20	0.07	0.37	0.47	0.25	0.17	0.13	0.07	0.33	4.08
Skewness	1.03	1.62	0.72	-0.04	2.37	1.79	8.16	4.26	0.46	1.78	-4.87	2.22	8.19
Kurtosis	2.07	6.11	3.71	2.26	16.40	4.19	85.80	27.37	3.11	6.60	83.34	5.93	101.13
Observations	599	599	599	599	599	599	599	599	599	599	599	599	599

Panel C: Descriptive statistics of variables for Phase 3

	Emerging	*Foreign*	*Size*	*Leverage*	*Accrual*	-	*AssetGrowth*	*SalesGrowth*	*Invrec*	*Cash*	*ROA*	*Loss*	*MB*
Mean	0.32	9.46	10.52	0.53	-0.01	-	0.09	0.11	0.37	0.15	0.02	0.16	1.70
Median	0.00	5.60	10.32	0.54	-0.02	-	0.05	0.07	0.35	0.11	0.03	0.00	1.24
Maximum	1.00	53.20	16.73	0.97	0.44	-	2.32	2.98	0.95	0.66	0.20	1.00	19.59
Minimum	0.00	0.00	6.95	0.06	-0.23	-	-0.30	-0.47	0.01	0.00	-0.54	0.00	0.28
Std. Dev.	0.47	10.44	1.50	0.19	0.07	-	0.24	0.27	0.18	0.12	0.07	0.37	1.64
Skewness	0.76	1.49	0.69	-0.07	1.29	-	5.21	5.75	0.47	1.61	-2.95	1.87	4.89
Kurtosis	1.58	5.11	3.91	2.31	10.77	-	40.82	52.66	3.10	5.75	20.30	4.49	42.89
Observations	397	397	397	397	397	-	397	397	397	397	397	397	397

Table 5. Pearson correlation matrices

Panel A: Correlation matrix for Phase 1

	Emerging	*Foreign*	*Size*	*Leverage*	*Accrual*	*Clients*	*AssetGrowth*	*SalesGrowth*	*Invrec*	*Cash*	*ROA*	*Loss*	*MB*
Emerging	1.000												
Foreign	-0.192	1.000											
Size	-0.510	0.428	1.000										
Leverage	-0.080	-0.175	0.230	1.000									
Accrual	0.144	-0.067	-0.135	-0.048	1.000								
Clients	-0.140	0.135	0.205	0.060	-0.097	1.000							
AssetGrowth	0.167	0.097	-0.149	-0.175	0.153	-0.059	1.000						
SalesGrowth	0.127	0.127	-0.064	-0.102	-0.027	0.027	0.548	1.000					
Invrec	0.061	-0.087	0.006	0.273	0.157	0.099	-0.083	0.019	1.000				
Cash	0.264	0.190	-0.285	-0.458	0.018	-0.189	0.212	0.121	-0.224	1.000			
ROA	-0.020	0.137	0.041	-0.172	0.133	-0.041	0.447	0.347	-0.025	0.113	1.000		
Loss	0.066	-0.131	-0.067	0.185	-0.048	-0.015	-0.305	-0.204	0.106	-0.085	-0.559	1.000	
MB	-0.032	0.158	0.027	0.093	-0.050	-0.073	0.118	0.137	-0.004	0.172	0.109	0.007	1.000

Panel B: Correlation matrix for Phase 2

	Emerging	*Foreign*	*Size*	*Leverage*	*Accrual*	*Clients*	*AssetGrowth*	*SalesGrowth*	*Invrec*	*Cash*	*ROA*	*Loss*	*MB*
Emerging	1.000												
Foreign	-0.213	1.000											
Size	-0.512	0.543	1.000										
Leverage	-0.047	-0.155	0.161	1.000									
Accrual	0.151	0.049	-0.072	0.040	1.000								
Clients	-0.111	0.168	0.225	0.068	-0.010	1.000							
AssetGrowth	0.194	0.027	-0.107	-0.097	0.289	-0.004	1.000						
SalesGrowth	0.122	0.042	-0.062	-0.035	0.348	0.022	0.663	1.000					
Invrec	0.036	-0.035	-0.009	0.265	0.301	0.113	-0.046	0.022	1.000				
Cash	0.319	0.013	-0.323	-0.423	0.023	-0.208	0.347	0.212	-0.260	1.000			
ROA	-0.031	0.173	0.084	-0.198	0.157	0.049	0.117	0.129	-0.036	0.119	1.000		
Loss	0.047	-0.147	-0.159	0.153	-0.070	-0.038	-0.111	-0.059	-0.016	-0.036	-0.510	1.000	
MB	0.134	0.049	-0.140	-0.057	0.120	-0.040	0.514	0.494	-0.075	0.380	0.223	-0.072	1.000

Panel C: Correlation matrix for Phase 3

	Emerging	*Foreign*	*Size*	*Leverage*	*Accrual*	-	*AssetGrowth*	*SalesGrowth*	*Invrec*	*Cash*	*ROA*	*Loss*	*MB*
Emerging	1.000												
Foreign	-0.204	1.000											
Size	-0.513	0.576	1.000										
Leverage	-0.084	-0.147	0.146	1.000									
Accrual	0.041	-0.014	0.000	0.037	1.000								
AssetGrowth	0.113	0.089	-0.046	-0.007	0.444	-	1.000						
SalesGrowth	0.167	0.110	-0.015	-0.012	0.216	-	0.649	1.000					
Invrec	-0.025	0.064	0.129	0.332	0.284	-	0.086	0.066	1.000				
Cash	0.337	0.004	-0.328	-0.387	-0.104	-	0.207	0.116	-0.282	1.000			
ROA	-0.104	0.047	0.090	-0.312	0.171	-	0.252	0.117	-0.106	0.172	1.000		
Loss	0.069	-0.081	-0.160	0.185	-0.185	-	-0.116	0.010	0.028	-0.035	-0.656	1.000	
MB	0.090	0.105	-0.062	0.039	0.149	-	0.432	0.207	-0.050	0.223	0.165	-0.004	1.000

Descriptive statistics of independent variables are presented in panels A to C of Table 4. Table 5 presents a Pearson correlation matrix for the independent variables. Panels A to C correspond to Phases 1 to 3, respectively. High correlation is observed between *Emerging* and *Size* (-0.51) for all panels, which is reasonable, because large and established stock exchanges such as the Tokyo Stock Exchange allow only large firms to be listed. *Foreign* and *Size* (0.43~0.58) are also highly correlated. Not surprisingly, the correlation between *AssetGrowth* and *SalesGrowth* (0.55 ~ 0.66) is also high. By definition, the correlation between *ROA* and *Loss* (-0.51 ~ -0.66) is high, too.

5. Empirical results

5.1 Univariate analyses

Table 6 presents the results of univariate analyses of the relationship between the selection of new auditors and reputation factors. Panels A, B and C correspond to Phases 1, 3, and 2, respectively. Panel A compares four reputation factors between firms switching to the other auditors and those staying at ChuoAoyama in Phase 1, showing that differences between two groups of firms are statistically significant for both the mean and median of *Size*. The negative sign of *Size* indicates that firms switching away from ChuoAoyama were more likely to have smaller amounts of assets. This result is not consistent with our prediction that firms more concerned about reputation tended to switch away from ChuoAoyama.

Table 6. Univariate analyses on reputation factors in different phases

Panel A: Reputation factors in auditor switches for Phase 1

	Other auditors (A)			ChuoAoyama (B)			Differences (A) - (B)				Expected sign
	Obs.	Mean	Median	Obs.	Mean	Median	Mean	(t-value)	Median	(t-value)	
Emerging	14	0.43	0.00	519	0.25	0.00	0.17	(1.26)	0.00	(0.00)	-
Foreign	14	4.64	1.75	519	5.79	1.90	-1.16	-(0.63)	-0.15	-(0.08)	+
Size	14	10.09	9.94	519	10.66	10.44	-0.58	-(2.24) **	-0.50	-(1.95) *	+
Leverage	14	0.61	0.63	519	0.55	0.57	0.05	(0.98)	0.06	(1.04)	+

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel B: Reputation factors in auditor switches for Phase 3

	Big 4 (A)			Non-Big 4 (B)			Differences (A) - (B)				Expected sign
	Obs.	Mean	Median	Obs.	Mean	Median	Mean	(t-value)	Median	(t-value)	
Emerging	315	0.31	0.00	82	0.37	0.00	-0.05	-(0.92)	0.00	(0.00)	-
Foreign	315	9.69	6.40	82	8.56	3.15	1.13	(0.81)	3.25	(2.32) **	+
Size	315	10.61	10.42	82	10.20	10.02	0.40	(2.00) **	0.39	(1.95) **	+
Leverage	315	0.53	0.54	82	0.54	0.55	-0.01	-(0.39)	-0.02	-(0.69)	+

Note: 1.***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.
2. Aarata is included in Big 4.

Panel C-1: Reputation factors in auditor switches for Phase 2

	Other Big 4 (A)			Aarata (B)			Non-Big 4 (C)			Misuzu (D)		
	Obs.	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median
Emerging	89	0.16	0.00	54	0.19	0.00	71	0.20	0.00	385	0.32	0.00
Foreign	89	13.34	10.40	54	12.29	7.05	71	8.23	5.30	385	8.85	5.10
Size	89	11.41	11.18	54	11.60	11.06	71	10.60	10.35	385	10.49	10.33
Leverage	89	0.55	0.54	54	0.50	0.53	71	0.55	0.57	385	0.53	0.54

Panel C-2: Differences from Aarata and Misuzu

Differences from Aarata

	Other Big 4: (A) -(B)				Expected sign
	Mean	(t-value)	Median	(t-value)	
Emerging	-0.03	-(0.42)	0.00	(0.00)	-
Foreign	1.05	(0.46)	3.35	(1.45) *	+
Size	-0.19	-(0.59)	0.12	(0.38)	+
Leverage	0.05	(1.45) *	0.02	(0.55)	+
	Non-Big 4: (B) -(C)				Expected sign
	Mean	(t-value)	Median	(t-value)	
Emerging	-0.01	-(0.18)	0.00	(0.00)	-
Foreign	4.06	(1.76) *	1.75	(0.76)	+
Size	1.01	(3.12) ***	0.70	(2.18) **	+
Leverage	-0.06	-(1.68) *	-0.05	-(1.39) *	+
	Misuzu: (B) -(D)				Expected sign
	Mean	(t-value)	Median	(t-value)	
Emerging	-0.14	-(2.07) **	0.00	(0.00)	-
Foreign	3.43	(1.49) *	1.95	(0.84)	+
Size	1.11	(3.44) ***	0.73	(2.25) **	+
Leverage	-0.03	-(0.89)	-0.01	-(0.38)	+

Differences from Misuzu

	Other Big 4: (A) -(D)				Expected sign
	Mean	(t-value)	Median	(t-value)	
Emerging	-0.16	-(2.50) ***	0.00	(0.00)	-
Foreign	4.49	(1.94) **	5.30	(2.30) **	+
Size	0.92	(2.85) ***	0.85	(2.63) ***	+
Leverage	0.02	(0.57)	0.01	(0.16)	+
	Non-Big 4: (C) -(D)				Expected sign
	Mean	(t-value)	Median	(t-value)	
Emerging	-0.12	-(1.89) **	0.00	(0.00)	-
Foreign	-0.63	-(0.27)	0.20	(0.09)	+
Size	0.10	(0.32)	0.02	(0.07)	+
Leverage	0.03	(0.80)	0.03	(1.01)	+

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel B compares four reputation factors between firms switching to the other Big 4 auditors and those switching to Non-Big 4 auditors in Phase 3, showing that differences between two groups of firms are statistically significant for the mean and median of *Size* and for the median of *Foreign*. The signs of these variables indicate that firms with a higher foreign shareholders ratio and larger amounts of assets were more likely to switch to the other Big 4 audit firms. These results are consistent with our

prediction that firms more concerned about reputation tended to switch to the other Big 4 auditors.

Panel C-1 presents both the mean and median of reputation factors for firms switching to the other Big 4 auditors, Aarata, Non-Big 4 auditors, and Misuzu in Phase 2. Panel C-2 compares four reputation factors among these four groups of firms, providing the following findings: First, differences between Aarata and the other Big 4 auditors are statistically significant at the 10% level for the mean of *Leverage* and for the median of *Foreign*. Likewise, differences between Aarata and Non-Big 4 auditors are statistically significant for both the mean and median of two variables (*Size* and *Leverage*) and for the mean of one variable (*Foreign*), and so are differences between Aarata and Misuzu for the mean and median of one variable (*Size*) and for the mean of two variables (*Emerging* and *Foreign*). The signs of differences indicate that firms more concerned about reputation preferred the other Big 4 auditors to Aarata, while they preferred Aarata to Non-Big 4 auditors and Misuzu. We also note that the mean and median of reputation factors are quite different between firms choosing Aarata and those choosing Non-Big 4 auditors and Misuzu, but not much different between firms choosing Aarata and those choosing the other Big 4 audit firms.

Similarly, differences between Misuzu and the other Big 4 auditors are statistically significant for the mean and median of two variables (*Foreign* and *Size*) and for the mean of one variable (*Emerging)*, while differences between Misuzu and Non-Big 4 auditors are significant only for the mean of one variable (*Emerging*). In other words, the mean and median of reputation factors are not much different between firms choosing Non-Big 4 audit firms and those choosing Misuzu, while they are quite different between firms choosing Misuzu and those choosing the other Big 4 auditors. In addition, the signs of differences indicate that firms concerned about reputation preferred the other Big 4 auditors and Non-Big 4 auditors to Misuzu.

Combining these findings for Phase 2, we can conclude that reputation factors more greatly affected the selection of new auditors for firms choosing the other Big 4 audit firms and Aarata than for those choosing Non-Big 4 audit firms and Misuzu. In addition, the differences between the other Big 4 audit firms and Aarata are quite small, as only one variable is significantly different. Likewise, the differences between Non-Big 4 audit firms and Misuzu are also small, because only one variable is significantly different. This indicates that PwC's attempt to preserve its reputation by establishing Aarata seems to have been successful, while Misuzu was considered to have audit quality as low as that of the Non-Big 4 audit firms.

Table 7. Comparison of reputation factors between firms in difference phases

Panel A: Comparison between firms switching to other auditors in Phase 1 and those in Phase 2

	Other auditors in Phase 1 (A)			Other auditors in Phase 2 (B)			Differences: (A) - (B)				Expected
	Obs.	Mean	Median	Obs.	Mean	Median	Mean	(t-value)	Median	(t-value)	sign
Emerging	14	0.43	0.00	160	0.18	0.00	0.25	(1.80) **	0.00	(0.00)	+
Foreign	14	4.64	1.75	160	11.07	7.65	-6.43	-(3.19) ***	-5.90	-(2.92) ***	-
Size	14	10.09	9.94	160	11.05	10.86	-0.96	-(3.43) ***	-0.92	-(3.27) ***	-
Leverage	14	0.61	0.63	160	0.55	0.55	0.06	(1.02)	0.08	(1.43) *	-

Note: 1. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.
2. Other auditors include both Big 4 and Non-Big 4 auditors.

Panel B: Comparison between firms choosing other Big 4 auditors in Phase 2 and those in Phase 3

	Big 4 in Phase 2 (A)			Big 4 in Phase 3 (B)			Differences: (A) - (B)				Expected
	Obs.	Mean	Median	Obs.	Mean	Median	Mean	(t-value)	Median	(t-value)	sign
Emerging	143	0.17	0.00	315	0.20	0.00	-0.14	-(3.51) ***	0.00	(0.00)	-
Foreign	143	12.94	8.20	315	8.23	5.30	3.25	(2.68) ***	1.80	(1.48) *	+
Size	143	11.48	11.15	315	10.60	10.35	0.88	(5.05) ***	0.73	(4.22) ***	+
Leverage	143	0.53	0.53	315	0.55	0.57	0.00	(0.01)	-0.00	-(0.13)	+

Notes: 1. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.
2. Aarata is included in Big4 for both phases.

Next, we compare reputation factors between firms doing the same selection in different phases. Table 7 presents the results: Panel A presents a comparison between firms switching to other auditors in Phase 1 and those switching in Phase 2. Other auditors here include both Big 4 and Non-Big 4 auditors, because very few firms switched away from ChuoAoyama in Phase 1, as shown in Table 2. Panel B compares reputation factors between firms choosing Big 4 auditors in Phase 2 and those switching in Phase 3. Big 4 auditors here include Aarata, because very few firms switched away from Misuzu to Aarata in Phase 3, as shown in Table 2.

First, Panel A shows that the difference of firms switching to other auditors between Phase 1 and Phase 2 is statistically significant at the 1% level for the mean and median of two variables (*Foreign* and *Size*), at the 5% level for the mean of *Emerging*, and

at the 10% level for the median of *Leverage*. The signs of differences are consistent with our predictions, except for *Leverage*, the significance level of which is relatively low. Our results indicate that firms listed on established stock exchanges, firms with higher foreign shareholders ratios, and firms with larger amounts of assets decided to switch auditors more often in Phase 2 than in Phase 1. This means that former ChuoAoyama clients switching to other auditors were more concerned about reputation for audit quality in Phase 2 than in Phase 1, as the official agencies announced penalties on Kanebo and ChuoAoyama in 2006.

Panel B shows that differences of firms switching to the other Big 4 audit firms between Phase 2 and Phase 3 are statistically significant for the mean and median of two variables (*Foreign* and *Size*) and for the mean of *Emerging*. The signs of differences indicate that firms listed on established stock exchanges, firms with higher foreign shareholders ratios, and firms with larger amounts of assets decided to switch to the other Big 4 auditors more often in Phase 2 than in Phase 3. This means that firms switching to the other Big 4 auditors were less concerned about reputation in Phase 3 than in Phase 2.

In sum, our comparison of reputation factors over time indicates that reputation factors more greatly affected auditor switches of former ChuoAoyama clients in Phase 2 than in Phases 1 and 3. The decreased effect of reputation in Phase 3 is particularly of interest, because it suggests the following possibilities. First, capacity constraints of big audit firms may have become severer in Phase 3 than in Phase 2. Second, differences in perceived audit quality between Big 4 and Non-Big 4 auditors may have decreased after the ChuoAoyama scandal and the introduction of the J-SOX, even though these events were likely to increase the demand for quality audits at the same time.

5.2 Multivariate analyses

To conduct multivariate analyses we estimate the logistic models (1) to (3) shown in the previous section. Table 8 presents the regression results. For regression (1), no variables representing reputation factors are statistically significant. This indicates that auditor switches from ChuoAoyama may not have reflected the reputation loss in Phase 1. Instead, two variables representing audit risk (*AssetGrowth)* and financial risk (*ROA*) are statistically significant at the 1% level, indicating that firms with greater audit risk and higher financial risk tended to change auditors in Phase 1.

Table 8. Auditor switch logistic regressions

This table shows the results of three regressions. The dependent variables are *Change2004*, *Change2006*, and *Change 2007*. Variable definitions are in Appendix.

	Expected sign	Regression (1) *Change2004*		Regression (2) *Change 2006 (model a)*		Regression (2) *Change 2006 (model b)*		Regression (3) *Change 2007*	
		Coefficient	z-Statistic	Coefficient	z-Statistic	Coefficient	z-Statistic	Coefficient	z-Statistic
Emerging	-	0.036	(0.05)	-0.472	-(1.89) *	-0.495	-(1.99) **	0.239	(0.71)
Foreign	+	0.007	(0.15)	0.002	(0.25)	0.001	(0.12)	-0.004	-(0.24)
Size	+	-0.153	-(0.55)	0.236	(3.07) ***	0.230	(3.04) ***	0.188	(1.41)
Leverage	-	2.496	(1.38)	0.135	(0.26)	0.151	(0.29)	-0.410	-(0.51)
Accrual	-	3.614	(1.24)	-1.187	-(0.74)				
Clients	-	0.893	(1.13)	-0.212	-(0.89)				
AssetGrowth	-	3.689	(2.80) ***	-0.129	-(0.46)	-0.178	-(0.63)	0.491	(0.66)
SalesGrowth	-	0.814	(0.45)	0.169	(0.36)	0.080	(0.17)	-1.118	-(1.72) *
Invrec	-	-1.039	-(0.55)	0.159	(0.29)	0.001	(0.00)	0.846	(1.09)
Cash	+	3.151	(1.17)	0.614	(0.69)	0.752	(0.85)	-0.340	-(0.27)
ROA	+	-7.843	-(2.83) ***	-0.511	-(0.36)	-0.725	-(0.52)	1.014	(0.41)
Loss	-	-0.060	-(0.08)	0.243	(0.81)	0.222	(0.74)	-0.615	-(1.44)
MB	+	-0.213	-(0.65)	0.058	(2.19) **	0.060	(2.31) **	-0.039	-(0.46)
Obs.		533		599		599		397	
LR stat		20.875 *		38.919 ***		37.654 ***		17.379 *	
Pseudo-R^2		16.12%		3.13%		3.03%		4.30%	

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

For regression (2), two variables (*Emerging* and *Size*) are statistically significant for two models and their signs are consistent with our predictions. Specifically, the coefficients on *Emerging* are significantly negative at the 10% and 5% levels for models a and b, respectively, while the coefficients on *Size* are significantly positive at the 1% level for both models. This result indicates that reputation factors affected the selection of new auditors for former ChuoAoyama clients in Phase 2. Among control variables, only the coefficients on *MB* are

significantly positive at the 5% level, and its sign is consistent with our prediction.

For regression (3), no variables representing reputation factors are statistically significant. This indicates that auditor switches from Misuzu may not have reflected reputation concerns. Among control variables, only the coefficient on *SalesGrowth* is significantly negative at the 1% level. This is consistent with our prediction, indicating that firms with greater audit risk tended to choose Non-Big 4 audit firms rather than Big 4 audit firms.

In sum, our regression analyses detect the effect of reputation factors on auditor switches of former ChuoAoyama clients only in Phase 2 and not in Phase 1 or Phase 3. The observed concerns for reputation factors in Phase 2 are consistent with our univariate analyses and prior studies including those of Numata and Takeda (2010) and Skinner and Srinivasan (2012). As discussed in the previous subsection, the possible reasons why we cannot find significant impacts of reputation factors in Phases 1 and 3 are as follows. First, the ChuoAoyama scandal was the first large accounting scandal that triggered the severest penalties imposed by the FSA. Thus, former ChuoAoyama clients may not have been concerned much about the reputation loss of their auditors until the FSA announced the suspension of statutory auditing services in May 2006, which was between Phases 1 and 2. Auditor switches based on reputation concerns were best observed in Phase 2, which includes the period of suspension (July 1 – September 1, 2006).

Second, when Misuzu collapsed, its clients had fewer choices of auditors probably because of capacity constraints. In addition, the audit failure of ChuoAoyama and the introduction of the J-SOX may have decreased the differences in perceived audit quality between Big 4 and Non-Big 4 audit firms. Thus, many former Misuzu clients were likely to follow existing audit team moving to a new audit firm rather than carefully considering the reputation of new audit firms.[10] The results of our multivariate analyses are basically consistent with those of our univariate analyses.

6. Concluding remarks

We investigated how reputation factors affected the selection of new auditors by former ChuoAoyama clients after the scandals of ChuoAoyama and its successor, Misuzu. We found that former ChuoAoyama clients concerned about reputation for audit quality tended to change auditors during the period between summer and autumn 2006, when statutory auditing services of ChuoAoyama were suspended. When changing auditors, these clients were likely to switch to the other Big 4 audit firms or to Aarata. Our results also indicate that auditors' sensitivity to reputation factors decreased in summer and autumn 2007, probably due to intensified capacity constraints and the decreased differences in perceived audit quality between Big 4 and Non-Big 4 audit firms after the scandal and the introduction of the J-SOX.

[10] Skinner and Srinivasan (2012) show that 56% of former ChuoAoyama clients had no signatory in common on their auditor reports between FY 2007 and FY 2005, while 44% had at least one common signatory. This indicates that many former ChuoAoyama clients followed existing auditors moving to a new audit firm. This also contrasts auditor switches between FY 2006 and FY 2005 when no common signatory is found in switches from ChuoAoyama to the other Big 4 auditors.

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Appendix: Variable definitions

Variable name		Definition
Emerging	=	1 if the client is listed on an emerging stock exchange including JASDAQ, Mothers, and Heracles, and 0 otherwise.
Foreign	=	Foreign shareholders' ratio of total shareholders (%).
Size	=	Natural logarithm of total assets.
Leverage	=	Ratio of total debts to total assets (%).
Accrual	=	{(net income + extraordinary income/losses)- operating cash flow}/total assets (%).
Clients	=	1 if ChuoAoyama had the most clients in an industry, and 0 otherwise.
AssetGrowth	=	Growth rate in total assets from the previous settlement (%).
SalesGrowth	=	Growth rate in sales from the previous settlement (%).
Invrec	=	Inventories plus accounts receivables, divided by total assets (%).
Cash	=	Cash divided by total assets (%).
ROA	=	Return on assets, defined as net income divided by total assets (%).
Loss	=	1 if *ROA<0*, and 0 otherwise.
MB	=	Market to book ratio (%).
Change2004	=	1 if the clients moved away from ChuoAoyama, and 0 otherwise.
Change2006	=	3 if the client switched to the other Big 4 audit firms, 2 if switched to Aarata, 1 if switched to Non-Big4 audit firms, and 0 if switched to Misuzu.
Change2007	=	1 if the client chose the other Big 4 audit firm, and 0 otherwise.

LINEAR AND NONLINEAR DETERMINANTS OF THE PERFORMANCE OF INFORMAL VENTURE CAPITALISTS' INVESTMENTS. AN EMPIRICAL ANALYSIS

Vincenzo Capizzi*

Abstract

This paper is aimed at identifying and analyzing the contribution of the major drivers of the performance of informal venture capitalists' investments. This study analyzes data on Italian transactions and personal features of Italian Business Angels gathered during 2007 – 2011 with the support of IBAN (Italian Business Angels Network). The econometric analysis investigates the returns of business angels' investments and their major determinants (industry, exit strategy, experience, holding period, rejection rate, and year of divestiture). The major results are the followings:1) differently from previous literature, the relationship between Experience and IRR is quadratic and significant; 2) for the first time, is confirmed by quantitative data that short Holding period (below 3 years) earn a lower IRR; 3) the Rejection rate is logarithmic and the impact on IRR is positive and significant. Finally, the outcomes of the empirical analysis performed in this study allow identifying new and concrete insights on possible policy interventions.

Key Words: Business Angels, Informal Venture Capital, IRR, Determinants of Performance, Experience, Exit Strategies, Small Firms Equity Gap

JEL Codes: G24, G32

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1. Introduction

Either in developed or in developing market economies, each financial system does show a given deal of allocative inefficiency consisting in a gap between demand of financial resources by start-up companies and supply of early-stage capital. In details, debt is not the proper source of capital to finance start-up or seed firms, since creditors cannot count on collaterals, track records or other kind of risk mitigating factors that early-stage firms could not provide. Furthermore, volatile profitability items and unlevered cash flows – necessary to repay back and remunerate debt contracts – determine in most cases the ineligibility of start-ups for loan concessions, given the output of the creditworthiness analyses performed by credit institutions, which assigns these companies to the lowest rating class, as far as credit risk is concerned.

Regarding the equity market, the institutions that are supposed to invest in this kind of high-risk-return projects are venture capital funds. However, several studies show that venture capitalists prefer to invest in highly innovative firms, and that the minimum investment amount is usually over one million euro.[1] Because of VC investment policies, SMEs are cut off from their investments because they require smaller amount of capital (usually in the range 50,000 – 300,000 euro), their evaluation is time consuming and their cash flow generation pattern is difficult to predict, generating sustainable yields eventually only in the long run.[2] It is possible to argue that exists a gap – called "*funding gap*" – between the demand for capital from start-ups (early stage) and supply offered by venture capitalists.[3] The economic player who is capable to fill this gap is the Business Angel: a private investor who finances early-stage firms with his own private savings through the form of equity capital, adopting investment and way out policies characterized by high degree of flexibility. His purpose is to realize a financial gain when selling his shares of the company (usually after 3-7 years). This economic player has evolved during the past years and now can be

[1] NVCA, 2010
[2] Capizzi and Giovannini, 2010
[3] Amason and Sapienza, 1993; Gregorio and Shane, 2002; Arnstein, 2003 and Meyer, 2006

considered a professional investor, associated to networks of business angels and able to invest in syndication with other investors in order to supply financed firms with higher amount of capital (more than 1 million). Business angels – also called informal venture capitalists – are therefore crucial in order to stimulate and support the entrepreneurial propensity inside an economic system, and deserve indeed a much greater deal of attention and investigation by finance literature than in the past, although their informational opacity.

In this paper will be investigated the major drivers of the performance of business angels' investments,

thus extending to the informal venture capital market research areas and methodologies widely applied in the literature dealing with formal venture capital and private equity market.

The major contribution provided to finance literature is the extensive analysis of the Italian informal venture capital market performed by making reference to an unique database – built thanks to the information provided by surveyed business angels about their exits – containing the details of about 120 disinvestments made in Italy during the 2007 - 2011 time period and allowing the possibility to run a multivariate regression aimed at testing the substantial and statistically relevant explanatory power of an original set of independent variables (industry, exit strategy, experience, holding period, rejection rate, year of divestiture) to the profitability of business angels' investments. As a further contribution, differently from previous studies about informal venture capitalists, the empirical analysis will be performed through a multivariate regression based upon different functional forms for the set of independent variables used as proxies for the major determinants of the performance of business angels' investments. Both the research methodology and the results of the empirical analysis are innovative with respect to previous literature dealing with informal venture capital: firstly, the model demonstrates the relevance of the new set of explanatory variables used as proxies for the determinants of IRR of informal venture capitalist' investments; secondly, while previous empirical studies hypothesize linear relationships between the explanatory variables and IRR, this work tests different functional forms for the explanatory variables themselves, linear and non linear ones as well.

The paper is structured as follows: the following paragraph will shed light over the informal venture capital industry, showing its relevance all around the world, describing its main actors – business angels – and comparing them with venture capital funds, and disclosing business angels investment strategies. The third paragraph will examine the relevant literature regarding the informal venture capital industry. In the fourth paragraph will be analyzed data from the Italian venture capital market in 2007-2011 time period, while in the fifth paragraph will be performed the above mentioned empirical analysis. The final paragraph will end with conclusive remarks and suggestions for policy makers.

2. The role of the Informal Venture Capital industry

The informal Venture Capital is an important vehicle for the development of new firms: the market for informal venture capital finances more small firms than the formal venture capital market.[4] This market developed in the US and UK at the beginning of the 80s; grew steadily during the 90s and slowed down after the dotcom bubble burst in 2000. After 2002 the market began to grow at fast pace and is reaching high level not only in terms of invested capitals, but also in terms of specialization and professionalism of business angels.5

The market for *informal future capital* includes various typologies of investors, among which the most important are the Business Angels, who: finances small and newly constituted companies buying minority stakes.

They not only provides financed firms with capital, but also with knowledge and his personal network, filling not only the above mentioned funding gap, but also reputational and experience gap normally affecting start-ups.[6]

A seminal contribution by Mason and Harrison in 1994 identifies business angels as occasional investors, and most of them make only one investment per year; on average, they finance 8% of the project they analyze. Another relevant article by Coveney and Moore in 1998, while confirming the results of the precedent analysis, identifies some major drivers for business angels' investments, the most important of them at are the quality of the management and the potential growth of the company they are evaluating. Of course, business angels are mainly interested in capital gain, but the non-financial aspects of the investment (such as personal knowledge of the entrepreneur ad discovery of new technologies) are important too.

A study conducted by BVCA in 1999 on the British market highlighted the key features of the business angel: he is wealthy, with an entrepreneurial, managerial or consulting background, almost exclusively male and between 40 and 65 years old. Like venture capitalists, also business angels' aim is to realize capital gains through the sale of the shares after some years (usually from 3 to 7). However, business angels and venture capitalists are deeply different investors. The first, and maybe most important, difference is that business angels invest their own capital. The second difference is that business angels have a small amount of capital to

[4] Harrison and Mason, 1998
[5] EBAN, 2006
[6] Sorrentino, 2003

invest (compared to those at venture capitalists disposal), thus they prefer small companies[7] (even though, in the last years, business angels finance bigger projects thanks to syndication investments. The third difference between business angels and venture capitalists is represented by the reason for which they invest. Venture capitalists invest exclusively for financial reasons, with evaluation models, risk/gain profiles and diversification strategies. business angels have financial reasons too, but they invest also for other reasons: develop new technologies, play an entrepreneurial role, etc..[8] Because of the limited amount of capital they can invest, they don't have diversification strategies. Because of the scarce light publicly shed on angels, the research of investment opportunities is inefficient: differently from *formal venture capital*, where venture capitalists are visible and the match between them and entrepreneurs is easy, in the *informal venture capital* information costs are very high.[9] Also the evaluation process is longer; furthermore, the scarce visibility of the angels is problematic for entrepreneurs too. This gap of information has been filled (at least partially) by BANs (Business Angels Networks).

Since the 90s business angels tried to fill the information gap gathering in territorial groups. However, that was not enough to get over the most important problems of the informal venture capital market: the invisibility of the business angels and the high cost or research of new investment opportunities. The economic crisis of 2000 led most angels to found élite group where only the most professional angels were admitted. This selection favored the ripening of the angels and let them select the best business plans. These associations grew to regional and national level (for instance IBAN in Italy) or even continental (EBAN in Europe), and are called Business Angels Networks. Networks are associations of business angels whose members are selected and must face a ripening process (or prove to be professional angels). Entrepreneurs submit business plans to the networks, which select the best projects according to angels' preferences. Differently from websites of the 90s, networks are interactive and much less fragmented (for instance, in Italy exists only one network at national level), thus entrepreneurs who submit their projects are aware that they will be analyzed by the best angels, which ensures the professional screening of the projects.

3. Literature Review

Business angels have attracted several studies during the last 30 years. The first studies by Wetzel go back to 1981. In those years, business angels were almost unknown and the researches were aimed at discovering their main features. After some years other contributions approached the informal venture capital market analyzing its major characteristics also outside the US.

Angel investing studies can be classified at least in two different groups of contributions depending on the investigated research areas.[10] Indeed, while first generation studies were aimed at finding common features among business angels in order to divide them into different typologies, second generation studies focused on their investment process: investment decision-making, returns, non-financial contribution to target companies and negotiation issues. Are also part of the second generation studies those aimed at measuring the size of the informal venture capital market (usually at the national level) and the studies analyzing the relationship between business angels and venture capitalists. Several contributions have also analyzed the demand-side (entrepreneurs and financed firms). Thus, the difference between first and second generation studies lies in the aim of the analysis, and not in the year of publication.

Along with the research areas of the studies, also the research questions changed considerably between the two generations. First generation studies answered questions like "What are the main features of the business angels (age, gender, residence, etc.)?", "What are their educational and working backgrounds?", "How much money do they invest (also as a percentage of their wealth)?". Second generation studies focused on less descriptive research questions, in order to shed light over the market for informal venture capital, the production process and the performance of business angels' investments, and the major differences between these investors and formal venture capitalist. Some examples of research questions investigated by second generation studies are: "What is the size of the informal venture capital market in a given country/area?", "What are the industries which receive most investments?", "What are the preferred exit strategies of informal venture capitalists?", "What is the average IRR of Business Angels investments?", "What are the major differences between business angels and venture capitalists"?

In order to answer to this series of research questions, it is necessary to build up a database of homogeneous data and information allowing for different kind of rigorous empirical analysis.

However, building such a database is a major obstacle because of the preference of business angels for anonymity, which makes difficult the data collection for researchers. This problem has been partly solved by analyzing relatively small samples of investors with different methods: surveys, BA associations and networks, snowball sampling methods, etc. Furthermore, the definition of angel investing is not univocal and has changed during the

[7] Harrison and Mason, 2000
[8] Hanf, 2007
[9] Mustilli and Gangi, 1999
[10] Mason, 2008

years, thus some studies consider as an angel investment also the financing from the family and friends.[11] Some business angels do not even consider their investments as "angel activity". Another problem is the representativeness of the sample: it is impossible to weight the answering business angels in order to infer the complete population, even at regional level. Furthermore, most business angels make relatively small investments, while only a few of them invest large amounts, thus missing just one big investment could jeopardize the results of the research. Other issues are the so-called virgin angels (individuals looking for their first investment) and the non-active investors (investors who made some investments in the past but are no longer active because of lack of liquidity and/or opportunities).[12]

During the years, data collection has been improved thanks to business angels networks and better knowledge about basic features of this kind of investors, which allows researchers to segment business angels and their investments in order to perform more sophisticated researches.

First generation studies are focused mainly on developed economies. The most important publications about the fundamentals of the business angels are Gaston (1989), Freear, Son and Wetzel (1992), Landström (1993), Visser and Williams (2001), Paul, Whittam and Johnston (2003), Harrison and Mason (2007) and Sohl and Hill (2007).

Second generation studies are focused on developing economies too. The most important publications about the investment process and the informal venture capital market are Van Osnabrugge (2000), Mason and Harrison (2003), Madill, Haines and Riding (2005), Sohl (2007) and Wiltbank *et al* (2007).

These studies shed light over processes and outcomes of angel investing. For instance, angels who emphasize control strategy experience fewer negative exits, while angels who emphasize prediction do not experience more exceptional (higher than 100%) returns (Wiltbank *et al*, 2007). Furthermore, the yield (acceptance) rate dropped after the dotcom bubble, but the membership to angel portals increased (Sohl and Sommers, 2003). About 50% of angel investment results in a loss (partial or total), and their returns are different from those of venture capitalists (neither higher nor lower) mainly because of different approaches to managing risk (Harrison and Mason, 1999).

Another relevant issue analyzed by several authors is the relationship between business angels' and venture capitalists. They are the most suitable investors for firms in the expansion stage that is the stage at which business angels usually look for a way out of their investment. However, as shown by Sheahan in 2005, about 40% of interviewed venture capitalists consider negatively the presence of a business angel at the screening stage. Conversely, another research carried out by Chirovolou in 2004 shows different results: the majority of surveyed venture capitalists think at the presence of a business angel as an added value. The main source of discord between the two investors is, of course, the valuation of the target firm: as shown by Sohl in 2006, while venture capitalists use scientific and standardized evaluation methods, business angels make reference also to their own experience and to "similar deals" (i.e. they take into account the evaluation performed by other investors for firms of the same industry and similar size), and retort that venture capitalists, when using their estimation methods, do not take into account the remuneration for the high risk borne by the angel (seeds and start-up are usually far more risky than established firms). A study on German-speaking countries carried out by Heukamp, Liechtenstein and Wakeling in 2007 shows that venture capitalists do not perceive the presence of business angels as a risk reduction factor, nor their presence influence, neither positive nor negative, the IRR.

In Italy there are only a few contribution on business angels, mainly descriptive analysis based upon IBAN surveys: Mustilli and Sorrentino (2003) and Capizzi and Giovannini (2010). The first study was aimed at understanding the main features of Italian business angels (first generation), while the latter measures the size of the Italian informal venture capital market (second generation).

Finally, a further stream of contributions – which we can label as "third generation studies" – is characterized by more rigorous econometric methodologies aimed at investigating quantitative issues such as the identification of the major determinants of investments in start up companies and the identification of the major determinants of performance of informal venture capitalists' investments.

Considering the determinants of the amount of invested capital, Harrison and Mason (2002) built an econometric model choosing as explanatory variables: tax incentives, macroeconomic growth, inflation rate and real estate prices, finding out that the first two factors were statistically significant

Turning to the Italian capital market, Capizzi and Tirino (2011) give their contribution to the research on this topic by building an econometric model based upon an alternative set of explanatory variables for the amount of invested capital: IBAN affiliation, number of co-investors, equity stake in the target company, life cycle of the target company, reference industry. The only variable that plays a significant role in determining the trend and volatility of the dependent variable is the equity stake in the target company, which proves once again the existence of the funding gap in the "institutional" financial system. Moreover, the authors suggest that

[11] Bygrave, Hay and Reynolds, 2003 and Maula, Qutio and Arenius, 2005
[12] Coveney and Moore, 1998

non-financial reasons have a higher impact on the amount angels are willing to invest, which is consistent with the characteristics of these type of investors and with the findings of previous literature.

As far as the determinants of the performance of business angels' investments are considered, Harrison and Mason (1999) first used an econometric approach selecting the following set of explanatory variables: exit strategy, holding period, life cycle of the target company, number of co-investors, potential of technologic innovation. The exit strategy and the holding period resulted to be significantly correlated with the IRR of business angels' investments. Wiltbank (2009) used a different set of explanatory variables (experience, duration of due diligence process, holding period, number of co-investors, strategic emphasis) finding out as statistically significant the experience of the investor and the duration of the due diligence process. Recently the Author (2011) performed an empirical analysis over the Italian informal venture capital market, selecting four explanatory variables: exit strategy, experience of the investor, holding period and reference industry. While exit strategy and industry proved to be relevant determinants of the performance of business angels' investments, the other two explanatory variables didn't show a statistically significant linear relation with the dependent variable.

Therefore, consistently with this last stream of contributions, the following empirical analysis is aimed at investigating the determinants of business angels' returns making reference to an innovative set of explanatory variables when compared with previous contributions. Furthermore, in this paper will be tested different functional forms – linear and non-linear – for the selected set of explanatory variables, in order to increase the predicting power of the whole econometric model.

4. The Italian informal venture capital market: descriptive analysis

Italian informal venture capital market is characterized by the difficulty to find data about the deals and their size. During the previous years were undertaken several studies about Italian Business Angels, but those researches considered only a limited number of informal investors. Following the features of the so-called second generation studies described in the previous chapter, the aim of this paragraph is to analyze data gathered during the analysis of the Italian informal venture capital market in the early months of 2008, 2009, 2010, 2011 and 2012, and to reckon the size of this market in Italy. Results will be analyzed in order to remark a trend in Business Angels' behavior and to extrapolate their key features. In order to do so, were analyzed operations undertaken during the five year period 2007-2011. After this preliminary analysis, the Italian data will be used in order to perform the empirical analysis described in the following paragraph.

As already anticipated, in Italy business angels are not recognized as a specific economic player, so doesn't exist a public register nor a track record of their transactions. Moreover, business angels have a preference for privacy that makes it difficult to find them for both entrepreneurs and researchers.[13]

IBAN (Italian Business Angels Network) carries out yearly a survey that studies the activity of Italian business angels. The analysis performed in this chapter was used by IBAN to publish the Surveys 2008, 2009, 2010, 2011 and 2012 on Italian informal venture capital market. The analysis was conducted forwarding an internet-based survey through different channels to a large number of individuals believed to be business angels operating in Italy. A fundamental role was played by IBAN, who submitted the survey to a vast number of individuals thanks to its wide network, the only legitimated at a political and regulatory level.

In this section will be analyzed data on Italian Business Angels.[14] As far as the sample for the descriptive analysis is concerned, we collected information on 104 Business Angels in 2007, 140 in 2008, 268 in 2009, 313 in 2010 and 225 in 2011.

The following points shed light over the structural features of the Italian informal venture capital industry, showing the personal features of Italian Business Angels, and considering both their investment policies and their exit strategies as observable from data dealing with capital invested and exits. [15]

First of all, regarding the wealth of the surveyed Angels, 21% of them has less than 500,000 euro, and 38% has between 500,000 and 2 million euro.

The most important source of deal flow are business angels networks, followed by investors clubs and other entrepreneurs. Conversely, the least important sources are banks and universities

The most relevant issues considered when evaluating a business plan in order to finance a firm are the team of managers and the potential growth of the target company; also the features of the product/service and the industry attractiveness play a major role, while the least important issues are tax benefits and the social impact of the delivered output.

Of the surveyed business angels, 95% bought less than 50% of the shares of the financed companies. Given the nature of angel investing, the purchase of majority stakes is not consistent with the role of the informal investor

[13] Hanf, 2007

[14] The analysis is about the informal venture capital market in Italy, and is based on data gathered during the Survey 2008, 2009, 2010, 2011 and 2012 (gathering data from the previous year), conducted by IBAN under the supervision of the Author; see Author (2013) for a more extensive presentation discussion of the results of the descriptive analysis provided in this paper.

[15] Ibidem.

Considering the share of personal savings invested, the 75% of the angels invest less than 10% of their wealth, and 15% invest between 11% and 20% of their wealth. Only 10% of the

As far as the total number of angel investing deals is considered, the 77% of the interviewed angels performed between 1 and 5 investments in their life, and only 12% made 6 or more investments.

Surprisingly, only 34% of investors says that their most important contribution to the financed firms is the capital they provide. The most important contribution to the financed firms is strategy (49%), followed by personal network of industrial and financial relationships.

Dealing with the favorite exit strategy for 66% of the interviewed angels is the sale/merge to other firms. This strategy has gained consensus among angels in the past three years. The second preferred exit strategy is the sale to other investors (53%).

Analyzing 2011 investments made by the observed sample, the total amount invested increased from €31,460,000 in 2009 to €34,847,000 in 2011 (this figure was €400,000 in 2000). The average investment decreased from €183,000 in 2007 to €124,000 in 2011 The number of reported investments is 281 (229 in 2010).

In 2011 the number of the deals under 30,000 euro increased from 33% to 53%, while the 83% of the investments were under 100,000 euro.

The preferred industry changes over the considered time period: in 2011 Italian business angels financed mainly ICT firms, while in 2010 the most financed industry was ICT and in 2009 it was biotech.

Turning to the analysis of reported exits, in 2011 they were 19 (only 7% of the surveyed angels reported at least one exit). Excluding a reported duration of 18 years, the average duration has been 4.9 years (in 2010 this data was 4 years), and 17% of exits took place within the third year of the investment (67% within the fifth year).

Dealing with the performance, in 2011, none of the reported disinvestments have caused a total or partial loss for the investors. Only one investor reported a total gain lower than 50%.

Summing up, it is possible to argument that the Italian informal venture capital market has grown steadily in the last decade – surging from €400,000 in 2000 to €34,847,000 in 2011 (CAGR +50%) – and the number of reported investments shows that the financial crisis has not hit angels' behavior. In addition, the yield rate (rate of financed business plans) has increased in the last 5 years, suggesting an increased ability of the business angels to classify good projects from bad ones, contributing to give rise to potentially more successful new ventures.

Furthermore, this analysis has shown how Italian business angels are converging to their European peers, both for personal features and investment behaviors, constituting therefore a challenging opportunity for investigating a representative sample of the informal venture capital market.

5. The determinants of the performance of business angels' investments: relevance and functional form

Making reference to the latest studies about business angels and their investments, this paragraph is aimed at testing the relevance of a set of explanatory variables deemed as proxies for the major determinants of the performance of informal venture capitalists' investments. Business angels are often considered "atypical" investors: they finance newly constituted firms providing risk capital, but they are not venture capitalists because they invest their own money. Furthermore, their approach is often informal and their contribution to the financed firms goes beyond the capital provided, consisting also in managerial competences and relationships to share with the entrepreneur. However, business angels are investors whose main purpose is to obtain appropriate returns when compared with the entrepreneurial risk undertaken. This issue has not received much attention from researchers until recently, thanks to the fact that business angels are being seen ever more as financial investors.[16] In Italy there is only one contribution on business angels returns and their determinants, which, as shown in paragraph 3, is a preliminary version of the empirical analysis performed in this paragraph.[17]

5.1 Data and methodology

Data have been collected referring to the 2007-2011 time horizons with an on-line survey: they include details on 119 exits made during those years. For this analysis, differently from data shown in descriptive tables, the sample of the econometric model is 81 exits because not significant variables (with less than three data) have been excluded from the sample.

Data on exits have been processed in order to reckon the IRR and to break down the disinvestments by: industry, exit strategy, experience, holding period, rejection rate of business angels and year of exit. These are the explanatory variables constituting the econometric model to be run in this paragraph.

In particular, the determinants of profitability of informal venture capitalists' investments have been selected by a 2-step process: selection of a wide set of variables from literature dealing with of both formal and informal venture capitalists' investments, as analyzed and classified in paragraph 2 (step 1) and screening process aimed at choosing of a short list of determinants making reference to the output of the survey dealing with personal features of business angels (step 2). In this way, it has been possible to

[16] Mason, 2008.
[17] Author, 2011.

select an original set of explanatory variables, when compared with previous studies, where, furthermore, the rejection rate characterizing the deal flow and screening process of business angels is an innovative determinant of profitability of business angels' investment to be tested

Regarding the dependent variable, that is the performance of a given investment, business angels often evaluate their returns as a multiple of their initial investment. However, to better compare different investments, it's useful to reckon the yearly return of an investment (i.e. the IRR). Table 1 shows the total returns of business angels investments (not adjusted for the duration). Once adjusted for duration (i.e. IRR), the distribution of the returns changes as shown below.

Of course, the number of total and partial losses is unchanged, but the number of higher than average returns (i.e. IRR of at least 20%) is smaller. This is owed to the fact that higher returns could require more time to ripe, thus curbing the IRR. About one third of business angels' investments results in a loss (partial or total). Considering only investments whose return is higher or equal to zero, the average total return is 107%. However, once adjusted for the duration, the average IRR is 25%.

The final econometric model to be tested through an OLS multivariate regression analysis will therefore be:

$$IRR_j = \alpha + \beta_1 Sector\_Dummy_j + \beta_2 E_j + \beta_3 E_j^2 + \beta_4 HoldingPeriod\_Dummy_j + \beta_5 ln(R_j) + \beta_6 Year\_Dummy_j + \varepsilon_j$$

where:

α - constant

$_j$ - divestment j

IRR - Internal Rate of Return

S - Sector *(dummy, base: Technology sector)*

E - Experience

H - Holding Period *(dummy, base: lower than 3 years)*

R - Rejection Rate

Y - year of exit *(dummy, base: 2007)*

ε - residuals.

Table 1. Total return and IRR of business angels' investments

Total return	**Percentage of total exits**
Total loss	7.8%
Partial loss	22.3%
0-19%	23.3%
20-49%	15.5%
50-99%	11.7%
≥100%	18.5%

IRR	**Percentage of total exits**
Total loss	7.8%
Partial loss	22.3%
0-19%	49.5%
20-49%	8.7%
50-99%	6.8%
≥100%	3.9%

Source: Author's elaboration

Hereafter a description of all the independent variables - together with their selected functional forms – is provided, as well as the description of the research hypothesis to be tested.

Industry

It is a *dummy* variable. Differently than in previous analysis where industries have not been clustered, here the different industries are aggregated in five classes: *Manufacturing, Commercial & Distribution (MCD); Financial Services; High-Tech (Includes Electronics, ICD and Biomedical); Media &*

Enternainment; Other (Include Construction, Security and Medical Services).

Such a classification can be explained basing upon the following arguments:

1) The number of sectors is very high – depending on the years it can vary from 12 to 14– when compared to the number of observations. Maintaining this number of dummies would result in a high disparity of observations across sectors, ranging from 2 to 15 observations, depending on the dummy.

2) The list of sectors available to respondents varies each year, making the original classification heterogeneous and not usable for comparison –e.g. the sector "other services" is present in the 2010 survey but not in the 2008's. Embedding all the different sectors into clusters restores homogeneity across years and across observations.

That being said, since the very seminal work of Wetzel (1983), and through many studies during the last 30 years, it has been demonstrated how the High-Tech played a key role in the economy due to both the growth rate of the market in the last years and its relevant contribution to job creation. Therefore, the following research hypothesis to be tested express the expected impact of this first explanatory variable.

H1: Investments in the High-Tech industry earn a significantly higher return then investments in other industries.

Looking at the data in the sample – table 2 –, the High-Tech industry does show the highest average return. It is worth noting, however, that the high volatility might not lead us to statistically significant difference between this sector and the second best performing one, *MCD.*

Table 2. Average IRR per Industry

Industry	Average IRR	N	Std. Deviation
Fin	-,0188	7	,28497
M&E	-,3007	7	,40901
MCD	,0200	12	,37113
Other	-,1232	9	,23684
Serv	-,0891	21	,51098
Tech	,0230	25	,41205
Total	-,0543	81	,41033

Source: Author's elaboration

Exit Strategy

It is a *dummy* variable. It is widely accepted among scholars and professionals (Mason, 2002; Gompers *et al*., 2010; Author, 2011) that a trade sale is the most profitable exit for a private investors, second only to the IPO, although the latter occurs very rarely for start-up firms. The reason is that a trade buyer is a strategic buyer who is willing to pay a premium price for the company due to the synergies that she expects to exploit after the acquisition, such as reduction of redundant assets or application of the new technology to existing products.

Sale to another financial investor is the third in the hierarchy of the most profitable exit strategies, while sale to the entrepreneurs is considered as a *last-best* before the ultimate way-out: abandonment due to the failure of the project.

This lead to the research hypothesis stated as follows.

H2: All the exit strategies will yield higher returns than "closed activity", with the highest ones associated with "listing", followed by "trade-sale", "sale to other investors" and "sale to the entrepreneur".

Since the exit strategies are five, four dummies are part of the model, with the base being "closed activity". Looking at table 3, the sample does reflect the expected trend where the abandonment of the investment (closed activity) is the exit with the minimum average IRR, which increases in the case of a sale to entrepreneur (although remaining negative), and becomes positive in the case of sale to another financial investor, hitting the peak with the trade sale. Unexpectedly, in the sample the option of IPO (Listing) does not represent the best choice, since the average return of the divestment that followed this strategy is even negative. However, it has to be noted that only four investors chose this strategy, which makes this option really low pursued – most a theoretical one –hardly comparable with the others.

Table 3. Average IRR per Exit strategy

Industry	Average IRR	N	Std. Deviation
Fin	-,0188	7	,28497
M&E	-,3007	7	,40901
MCD	,0200	12	,37113
Other	-,1232	9	,23684
Serv	-,0891	21	,51098
Tech	,0230	25	,41205
Total	-,0543	81	,41033

Source: Author's elaboration

However, once inserted in the model, for the considered sample the inclusion of the dummies related to exits led to a misleading result. Using as a base dummy "trade sale", only the dummy related to *"closed activity"* showed a significant (p-value < 0,01) beta, negative and with a high magnitude (|beta| > 5). This means that, *ceteris paribus*, the investor who chooses this exit strategy will earn a much lower IRR with respect to the investor who opts for a trade sale. The result is misleading in the sense that the variable *"closed activity"* does not explain the IRR, but instead it is explained by the failure of the initiative, which inevitably leads the investor to abandon the project.

The considerations above do not diminish the relevance of this variable in precedent studies carried out on different samples, since it is possible to control for this problem by deleting the observations related to *"closed activity"* and running the regression with the remaining observations to see the unbiased relationship between the type of exit and the dependent variable. However, in this specific case, it was not possible due to the limited amount of observations, the variable exit strategy was not inserted into the final model.

Consequently, *H2* is considered not supported by the data because, apart from *"closed activity"*, all the other dummies did not show a significant impact on the IRR and, therefore, neither could their impact be ranked as in *H2*.

Experience

It is a *scale* variable. As in Wiltbank *et al.* (2009) and in Author (2011), it is computed taking into account the number of investments made by the angel during her life. The descriptive statistics given by the authors, and confirmed in this study, show how the IRR peaks with a medium level of experience, giving a hint on the possible function of the variable. While it is clear why a low level of experience might lead to lower performances, different reasons might underpin the fact that lower returns are also associated with a high level of experience with respect to a medium level (Parhankangas and Hellström, 2007).

Firstly, an increase of the level of experience might reduce the risk aversion of the angel. In fact, the most successful investors are the ones who are more likely to continue to invest, and therefore it is more likely that investors that have collected a lot of positive results in the past will invest again and be overconfident.

The second explanation derives from an intrinsic potential weakness of the dataset, which depends entirely on the sincerity of the respondents. In fact, investors who already invested in a number of ventures (and who are more mature and elder) might also be more sincere in his responses to the questionnaire when compared to lower experienced informal investors.

The last reason, is that experience comes also with time, and as the investor becomes more expert and elder her knowledge might become less and less up to date with respect to the modern business environment, especially in those sectors which change very fast, the ones in which business angels typically invest.

Therefore, the following research hypothesis to be tested express the expected impact of this first explanatory variable.

H3. There is an inverted U-shaped relationship between Experience and IRR. Return will initially increase, and beyond a certain point decrease

However, with respect to Author (2011), the metric used in this paper to compute experience is more holistic, being not only linked to the number of previous investments, but also to age. In fact, as stated in paragraph 3, angels hold and have held relevant managerial positions, or they are and have been successful entrepreneurs. Since angels provide "smart money", it is reasonable to take into account also the expertise gathered during their professional life, besides the number of investments performed: age is the most synthetic measure to do so.

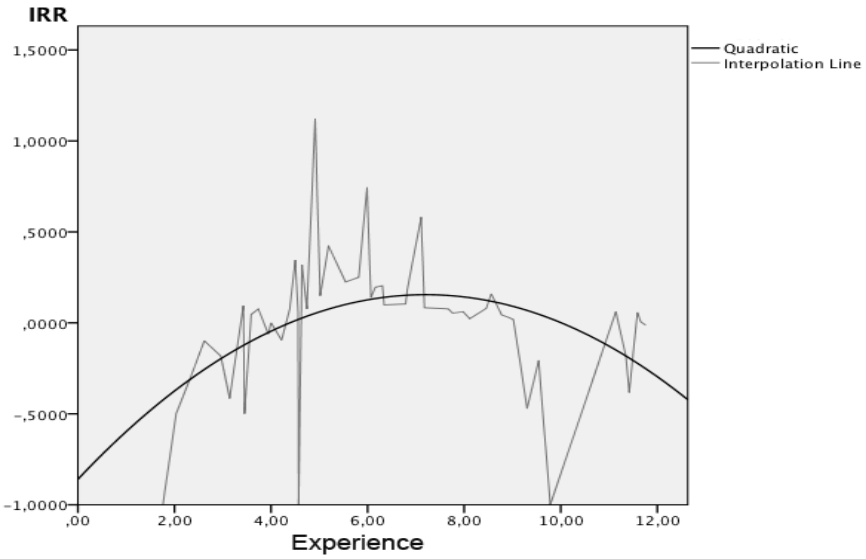
This reasoning is consistent with the study of Wiltbank (2005, 2009), who employs a metric similar to age – the number of years that angels have been investing in unquoted companies– to refine the measurement of experience. Strong ground for this practice is also given by researches on another field of study: the relationship between CEOs and top management on firm's performance (Henderson *et al.*, 2006; Gottesman and Morey, 2010) (Researches in this field widely use age as a proxy for experience

of manager, with conflicting results: Henderson et al. (2006) find that firm performance, especially for high tech firms, declines across the tenure of the CEO, whilst Gottesman and Morey (2010) conclude that managers age is positively related to firms' results). The similarity between this field and the informal venture capital industry is given by two factors. On the one hand, business angels are hands-on investors and entrepreneurs find their experience at least as fundamental as the capital they provide. On the other hand, IRR of private investors is, obviously, strictly related to the actual or potential performance of the investee firm.

For these reasons, in this paper age has been standardized and the final experience index is computed as a weighted (The weights have been arbitrarily set as 80% for the number of investments, and 20% for age. The higher weight attributed to the number of investments is due to the necessity to maintain consistency with previous literature (Author, 2011; Capizzi and Tirino, 2011), in order to preserve comparability of the results. However, since age takes into account expertise that represents one of the main sources) product of age and the number of investments made by the angel during her lifetime.

With this adjustment experience becomes a continuous variable (Experience computed only as the number of investment ever made by the single respondent is given as a range, therefore the median point of each range is used for the statistical analysis. This makes the variable discrete), and figure 1 shows the representation of the expected relationship.

Figure 1. Relation between IRR and Experience



Source: Author's elaboration

The blue line –interpolation- represents the true distribution of the observations in the sample, while the black line shows how the quadratic function approximates the data. As noticeable, the level of IRR peaks at a medium level of experience -five to eight investments- whilst at the extremes the return is lower, on average

Holding period

It is a *scale* variable, but is expressed in the model as a *dummy*. There are some reasons to believe that relationship between this variable and the IRR will be negative positive. In Author (2011), for example, it was assumed that the reason why angels keep their investment for too long is that they have difficulties in divesting due to lack of success of the investee company. On the other hand, there are reasons to believe that the relationship will be positive. In fact, contrarily to venture capital funds, that have a short time horizon for their investments in growth companies, angels are long-term investors, since they hold their investment for 3 to five years, on average (Wetzel, S. E., 1983; Sohl, 1999, 2007, 2010). This is also because they invest in the early stage of start up businesses, and even at seed level, thus they need time to let the investee company develop. Moreover, angels invest a very low portion of their own wealth in entrepreneurial ventures, and therefore have the freedom to decide not to divest in case the market is not ready to fairly value their company.

For these reasons, it is reasonable to believe that divestments that occur within the third year (the minimum in the range provided above) will be related to the abandonment of the project due to the failure of the initiative. Therefore, data on holding period have been divided into two categories: equal or lower than 3 years and higher than 3 years. This lead directly to the following research hypothesis.

H4: A Holding period lower than 3 years is associated with lower IRR.

Data presented in table 4 give us a qualitative confirmation of this hypothesis. As can be seen, holding periods below three years are generally associated with negative returns, whilst angels who liquidate their investments after three years are generally rewarded with a higher return averaging 7.7%.

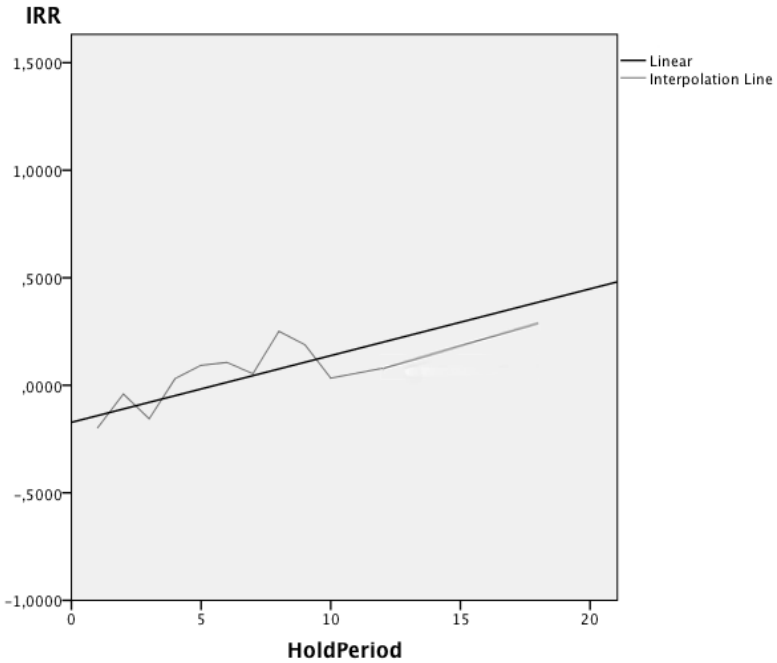
The graphical representation of this relation is showed by figure 2, where the interpolation line - which connects the arithmetic averages of IRR for a given number of year in the x axis- shows the distribution of the sample's observations, while the black line represents the trend, that is the linear model fit with the observations.

Table 4. Average IRR with respect clustered Holding Period

HP - clusters	Average IRR	N	Std. Deviation
HP <= 3 years	-,148974	47	,5130838
HP > 3 years	,076523	34	,1039872
Total	-,054321	81	,4103313

Source: Author's elaboration

Figure 2. Relationship between Holding Period (HP) an IRR



Source: Author's elaboration

Rejection rate. It is a *scale* variable. It is computed as 1 minus the ratio number of investment over the total number of projects evaluated by the investor (1- acceptance rate):

RR = 1 - (# investments performed / # investment considered)

The best way to calculate this ratio would be to use the total number of investments ever made over the total number of investments ever evaluated by the angel. This latter number is very difficult for an individual to remember, since one hardly keeps count of the business plans one ever dealt with in her life. The questionnaire, instead, provides us with the number of investment opportunities the investor came across during each year. In order to maintain homogeneity, the numerator is computed as the number of actual investments performed by the investor in the same year.

Regarding the relationship between this independent and the dependent variable, the IRR should increase at a diminishing rate with the rejection rate. The relationship between the two variables, in this case, is logarithmic.

Three main assumptions must hold for this metric to add value to the model:

Firstly, projects that come to the various business angels have, on average, the same quality; otherwise an investor who receives few high-potential business plans might register a RR equal to 0, still making a very high return with respect to the others.

Secondly, it is assumed that angels decide upon rational criteria (Lumme *et al.* , 1998) and that every one invests also for maximizing financial returns (The return on investment is a major motivation for

business angels, although not the sole one (Wetzel, 1981; Mason and Harrison, 1994; Lumme, Annareetta, Mason, Colin, The returns from informal venture capital investments: An exploratory study, 1996, Journal of Entrepreneurial & Small Business Finance, 10992219, Vol. 5, Issue 2). They also want to have fun while making money (Benjamin and Margulis, 1996). Wetzel (1981) reports that some business angels are influenced by 'hot buttons' and both Wetzel (1981) and Sullivan (1994) note that some business angels are willing to make a trade-off between financial and nonfinancial returns).

Lastly, an implicit assumption is that when informal venture capitalists pass investment proposals to scrutiny, they hold the money to invest in it during that given year. An angel that does not intend to invest would have a RR = 1 even though he came across very good proposals, but then her evaluation would be a waste of time and resources, since she would not invest in the first place. In other words, investors are assumed to be rational.

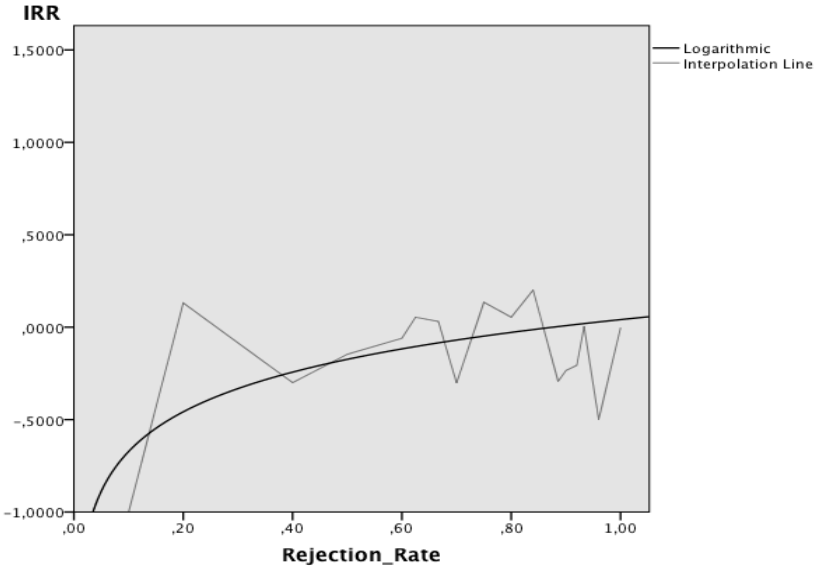
A possible limitation to the explanatory power of this metric is that, given the economic period in which observations were collected, the rejection rate could be artificially high, not because of differences in the application of the "killing criteria", but because of lack of funds or poor perspectives of the market.

Therefore, the following research hypothesis to be tested express the expected impact of this fourth – and innovative, when compared with previous studies – explanatory variable.

H5: As the Rejection Rate increases also the IRR does, at a diminishing rate.

Figure 3 shows how well the logarithmic function approximates the observations in the sample -blue line.

Figure 3. Relationship between Rejection Rate (RR) and IRR



Source: Author's elaboration

Year of divestiture. It is a *dummy* variable. Divestments occurred before the financial turmoil – in 2007 and 2008 – are expected to have obtained higher returns, *ceteris paribus*. In fact, as table 5 shows, in 2008, 2009 and 2010 showed a decreasing annual GDP growth rate, due to the condition of the international financial markets.

Table 5. Annual Italian GDP growth rate, 2006-2011

Year	GDP growth
2006	0,10%
2007	1,90%
2008	1,40%
2009	-1,00%
2010	-5,10%
2011	1,10%

Source: Author's elaboration

Since "*company valuations are often based on multiples of comparable publicly traded companies*" (Weiding *et al*., 2005), those years of economic recession are expected to cause lower market prices, and therefore lower returns for private investors, whose investee firm would be undervalued. Therefore, four dummies were created, with the base being 2007 year.

The following research hypothesis states the expectation about the impact of the yearly macroeconomic growth over the IRR of business angels' investments.

H6: *IRR will be lower for divestments that took place after the beginning of the current financial turmoil and economic recession*

A first, qualitative look at sample's data – table 6 – seems to confirm the hypothesis. IRR is around 10% in 2007 and 12% in 2011, while the years in between register negative returns ranging from -8% to -13%.

Table 6. Average IRR per year

Year	Average IRR	N	Std. Deviation
2007	,091016	8	,5170798
2008	-,113984	23	,4639784
2009	-,077039	24	,4102642
2010	-,131721	15	,4021240
2011	,119843	11	,0633777
Total	-,054321	81	,4103313

Source: Author's elaboration

Summing up, the following table provides the reader with a synthetic overview of all the research hypotheses to be tested, the explanatory variables and their functional forms as well as their expected impact on the IRR of business angels' investments.

Table 7. Sum up of research hypotheses, independent variables and expected results

Hypotheses	**Independent variable**	**Functional Form**	**Expectations**
H1.	Industry	Dummy	Hi-tech industry significantly more profitable
H2.	Exit	Dummy	Descending order profitability: • Listing • Trade Sale • Sale to other financial investor • Sale to entrepreneur • Closed Activity
H3.	Experience	Quadratic	Inverted U-shaped
H4.	Holding Period	Linear	Positive
H5.	Rejection Rate	Logarithmic	Positive
H6.	Year	Dummy	2008, 2009, 2010 associated with lower IRRs.

Source: Author's elaboration

5.2 Results

The econometric model has been tested using a backward procedure,[1] and it is able to explain 23,7% (R^2) of the variability of the dependent variable. Appendix 1 and 2 present the summary statistics from the regression analysis and the major output: Backward procedure, Model summary and Anova table.

By comparing the obtained results with the expected results, the conclusions below evidenced can be drown from the empirical analysis.

H1 is not supported. This means that, given the specification of the model, for the sample analysed, investments in Technology sector do not lead to

[1] The Backward procedure starts from the complete model, which includes all the possible explanatory variables. At each step the statistical software automatically removes the variable with the lowest t statistic (if it is not significant). It is possible do define a criterion of minimum significance required to keep each explanatory variable into the final model. In this case, the minimum level of significance was set at 10%.

significantly higher returns with respect to investments in other industries.

H2 is not supported for the reasons explained in preceding see paragraph 4.1.

H3 is fully supported. Experience does have a positive impact on IRR (positive Beta, significant at a 5% level). The variable "Experience squared" is also significant (5% level) and has a negative beta. This means that Experience positively affects IRR up to a certain level, after which additional levels of experience lead to decreasing returns on investment. Therefore, experience is related to IRR with an inverted U-shaped relationship, confirming the expectations. This implies that the non-significant linear relationship found by Capizzi (2011), might be due to misspecification of the functional form.

H4 is partly supported. The variable *Hold_high* is positive and significant at 10% confidence level. Therefore, investors who maintain their financial resources in the investee company for more than 3 years do show a return 0.18% higher than investors that, *ceteris paribus*, hold their investment for less than 3 years. In other words, the independent variable has a positive, although not strong, linear relationship with the IRR.

H5 is supported. Investors that are more selective with the projects they evaluate earn on average 0.27% higher returns than less selective ones, and this impact on IRR is strongly significant (p-value < 0.01%).

H6 is not supported. Even though the descriptive statistics showed that the average return during the period of financial crisis -from 2008 to 2010- is negative and lower with respect to year less affected by the downturn, this difference is not statistically significant. Furthermore, 2011 resulted to be an year characterized by positive GDP growth, but still affected by economic recession.

The results obtained from the analysis of the Italian informal venture capital industry cannot be compared with the domestic formal venture capital market, due to the small size of the VC market in Italy, its information opacity and the lack of a sufficiently homogenous database of institutional investors to use as benchmark sample.

Nevertheless, the major findings of the empirical analysis run in this study can be partially compared with some relevant contributions at the international level dealing with the formal venture capital industry.

Starting from the most interesting finding of this study, which is the quadratic relationship that links Experience with the performance of business angels' investments, it is interesting to observe that also

Parhankangas and Hellström (2007), who studied the Finnish venture capital industry, found that the most experienced venture capitalists – similarly to Italian informal investors – tend to overestimate the probability of success of the ventures they finance.

Other contributions dealing with VC industries of developed markets (Rosenstein et al. 1993; Sapienza et al. 1996) find that inexperienced venture capitalists earn lower returns with respect to more experienced ones. However, Fleming (2004) finds that in emerging markets experienced venture capital firms do not earn higher returns than inexperienced ones.

The conclusion is that the results of this study are consistent with the outcomes of a great deal of contributions dealing with the formal venture capital industry, as far as we demonstrated that both inexperienced angels and angels with overwhelming experience tend to earn lower returns.

Looking at the relationship between *holding period* and IRR in the forma venture capital industry, Stevenson *et al.* (1987) and Manigart *et al. (*2002), reach opposite results to this study. They demonstrate that venture capital firms bear expectations of higher returns when they plan to divest within the first years. In fact, as already mentioned, closed-end venture capital companies need to return financial resources harvested from exits to the shareholders. This implies that the company cannot reinvest the money to increase returns, and thus it will require higher yields if the holding period is expected to be short.

The key difference that explains the opposite result obtained in this research is that business angels invest their own money, and their involvement in the firm is high and effective – when compared with that of venture capital fund managers. For these reasons, angels will gain a higher return with a long-enough holding period (minimum 3 years) along which period the entrepreneur can take advantage of the expertise and network the angel can provide.

Although the econometric model used in this study has to be still better specified – and maybe there is the space for the identification of further explanatory variables – the outcomes of the empirical analysis give hints to business angels on which capabilities to improve and which behaviours to follow in order to boost financial performances:

- Improve the ability to evaluate business plans, that is approximated in the model with the level of rejection rate;
- Increase expertise, by performing more investments, rather than few very considerable ones;
- Do not fall into the trap of overconfidence, for instance by sharing information with other angels and co-investing;
- Invest with a long-term perspective.

6. Conclusions and policy suggestions

The descriptive and econometric analysis performed in the previous paragraphs allows to shed light over a still opaque segment of the capital market, and low regulated as well, but crucial in order to fill the

funding gap and boost the creation of new start-up companies: the informal venture capital markets.

This study firstly gives a comprehensive review of the literature on the informal venture capital, sorting the different studies by the three generations widely accepted by scholars.

Secondly, it analyses the results of five yearly surveys –from 2007 to 2011– carried out by the Italian Business Angels Network (IBAN): today, this is the widest and most innovative database that provides data on Italian business angels over a 5 year time period. The descriptive analysis, in comparison with the results of previous studies and international literature, provides the reader with an accurate and updated snapshot on the attitudes, behaviors and characteristics of Italian business angels.

Finally, the empirical analysis leads to innovative results and deepens the level of accuracy with respect to previous studies regarding the informal venture capital industry, in particular by innovating the econometric models used in previous studies through the introduction of an original set of independent variables (industry, exit strategy, experience, holding period, rejection rate, year of divestiture), and by choosing different and more appropriate functional forms for the classic linear ones.

Regarding the tested hypothesis, H1, H2 and H6 are not supported by the data. This means that in this sample, running the multivariate regression, on average, different *industries*, *exit strategies* or *years of divestiture* are factors that do not have a statistically significant impact on the dependent variable: the IRR. On the other hand, H3 is fully supported by data: *experience* positively affects IRR up to a certain level, after which additional levels of experience lead to decreasing returns on investment: therefore, experience is related to IRR with an inverted U-shaped relationship, confirming the expectations. H4 is just partially supported by empirical analysis: longer *holding periods* mean, on average, higher IRR, but only within a 10% level of significance. H5 is supported: investors characterized by higher *rejection rates*, that is more selective with the projects they evaluate, earn on average 0.27% higher returns than less selective ones, and this impact on IRR is strongly significant.

The importance of the informal venture capital industry has been repeatedly stressed during the course of this study. Business angels are the most relevant suppliers of funds for seed and start-up ventures, since they way overcome the amount of financial resources that venture capital funds allocate to firms in these early stages.

Today more than ever before, the role of these economic players is fundamental. In fact, angels replace the reduced bank's credit capacity, and new ventures absorb the excessive supply of labor, mitigating the soaring unemployment rate that plagues especially young workers. In such a harsh macroeconomic environment innovation and entrepreneurship must be encouraged by policymakers, as they can represent the solution to restart economic growth.

More concretely, a part from classical - though not herein criticized - financial and fiscal incentives, basing upon the results of the empirical analysis performed in this study, it is possible to give insights on further possible policy interventions.

The quadratic relationship between experience and IRR implies that angels should gather experience as quickly as possible, in order not to be on the left part of the inverted U-shape curve. Two instruments allow angels to gather experience without paying with lower IRRs.

The first one is to co-invest with other angels through syndicates. In this way, angels can learn from more experience peers and lower their risk exposure. Furthermore, the advice of co-investors and network members can limit the risk of overconfidence that threatens expert angels' performance.

The second one is participating to specific training courses offered by the Networks (BAN) to the investors, in order to give them the instruments to better evaluate business plans and improve the quality of their screening processes. In fact, the positive relationship between Rejection Rate and IRR demonstrates that angels with more stringent killer criteria will earn more. Also in this case, syndication and BANs play a key role in the refinement of angels' criteria and in their ability to evaluate business plans with an eye on potential IRR.

Unfortunately, as previously mentioned, BANs in Italy are still not thoroughly organized nor officially legitimated and do not have the financial availability to offer the educational services that angels would so much benefit from. If public incentives were focused on stimulating network membership, BANs would be able to gather the finances needed to offer educational services and angels would be pushed to actively participate. Moreover, angels would improve their ability in business plans' evaluation also by taking benefit of the sharing of experience inside BANs: Higher level of experience and better evaluation would lead to higher performance and, therefore, to a more efficient informal venture capital market. This, in turn, could further increase financial resources available to start-up businesses, stimulating the growth of the economic and social system as well.

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Appendix 1. Summary statistics from the regression analysis

	HP_high	Exp	Exp_squared	Ln_Rejection_Rate	SectorMCD	SectorOther	SectorME	SectorFin	SectorServ	y_2011	y_2008	y_2009	y_2010	Residuals
HP_high	1													
Exp	0,04	1												
Exp_squared	0,001	,981**	1											
Ln_Rejection_Rate	0,144	-0,089	-0,117	1										
SectorMCD	0,209	0,053	0,054	0,042	1									
SectorOther	-0,062	0,059	0,082	0,024	-0,147	1								
SectorME	-0,084	0,023	0,066	-0,174	-0,128	-0,109	1							
SectorFin	-0,173	-0,064	-0,069	0,059	-0,128	-0,109	-0,095	1						
SectorServ	-0,047	0,023	0,057	-0,026	-,247*	-0,209	-0,182	-0,182	1					
y_2011	,320**	-0,052	-0,07	-0,066	-0,165	-0,14	0,006	-0,122	0,012	1				
y_2008	-0,092	-0,005	-0,032	-0,128	-0,031	-0,048	0,001	0,196	-0,123	-,250*	1			
y_2009	-0,168	0,096	0,117	0,041	0,034	-0,057	-0,007	0,089	0,11	-,257*	-,409**	1		
y_2010	-0,019	-0,203	-0,186	0,097	-0,02	,236*	0,08	-0,147	-0,064	-0,189	-,300**	-,309**	1	
Residuals	0	0	0	0	0,036	-0,023	-0,071	0,036	0,014	0,117	-0,088	0,022	-0,12	1

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

Looking at the data, none of the variables show high level of Pearson's correlation coefficient. Moreover, none of the VIF coefficient is higher than 2.5, much lower than the conventional cut-off rate of 3, above which there would be a mild collinearity. This means that there is no multicollinearity among the variables.
Also the residuals of the model have been put into the correlation matrix and tested against the other independent variables. The VIF coefficient gave results even lower than 1: all the explanatory variables are uncorrelated with the error term

Appendix 2a. Regression outputs. Backward procedure. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-,174	,249		-,699	,487
	Ln_Rejection_Rate	,265	,109	,270	2,437	,017
	Exp_squared	-,010	,004	-1,356	-2,197	,031
	Exp	,127	,062	1,259	2,064	,043
	HP_high	,112	,098	,136	1,141	,258
	Sector MCD	,050	,149	,044	,337	,737
	Sector Other	,025	,162	,019	,153	,879
	Sector ME	-,054	,177	-,037	-,305	,761
	Sector Fin	,072	,172	,050	,419	,676
	Sector Serv	,004	,123	,004	,032	,974
	y_2011	,004	,198	,003	,021	,984
	y_2008	-,189	,168	-,209	-1,128	,263
	y_2009	-,125	,161	-,140	-,781	,438
	y_2010	-,220	,179	-,209	-1,230	,223
2	(Constant)	-,171	,215		-,798	,427
	Ln_Rejection_Rate	,264	,107	,269	2,479	,016
	Exp_squared	-,010	,004	-1,356	-2,214	,030
	Exp	,127	,061	1,259	2,080	,041
	HP_high	,113	,095	,136	1,189	,238
	Sector MCD	,049	,139	,043	,354	,725
	Sector Other	,024	,159	,019	,153	,879
	Sector ME	-,054	,176	-,037	-,308	,759
	Sector Fin	,072	,170	,050	,422	,674
	Sector Serv	,004	,120	,004	,029	,977
	y_2008	-,191	,125	-,212	-1,529	,131
	y_2009	-,127	,124	-,143	-1,031	,306
	y_2010	-,222	,141	-,211	-1,575	,120
3	(Constant)	-,168	,191		-,884	,380
	Ln_Rejection_Rate	,264	,106	,269	2,497	,015
	Exp_squared	-,010	,004	-1,350	-2,343	,022
	Exp	,127	,058	1,253	2,191	,032
	HP_high	,113	,094	,136	1,198	,235
	Sector MCD	,047	,125	,041	,379	,706
	Sector Other	,022	,144	,017	,155	,877
	Sector M&E	-,056	,160	-,039	-,351	,727
	Sector Fin	,070	,160	,048	,440	,661
	y_2008	-,191	,124	-,212	-1,540	,128
	y_2009	-,127	,122	-,142	-1,039	,302
	y_2010	-,222	,140	-,211	-1,586	,117
4	(Constant)	-,164	,187		-,877	,383
	Ln_Rejection_Rate	,265	,105	,270	2,519	,014
	Exp_squared	-,009	,004	-1,336	-2,365	,021
	Exp	,125	,057	1,241	2,205	,031
	HP_high	,112	,093	,136	1,205	,232
	Sector MCD	,044	,122	,038	,359	,721
	Sector M&E	-,061	,156	-,042	-,394	,695
	Sector Fin	,067	,157	,046	,427	,671
	y_2008	-,190	,123	-,210	-1,543	,127
	y_2009	-,126	,121	-,141	-1,040	,302
	y_2010	-,216	,135	-,206	-1,608	,112
5	(Constant)	-,159	,186		-,856	,395
	Ln_Rejection_Rate	,265	,104	,270	2,539	,013
	Exp_squared	-,009	,004	-1,320	-2,358	,021
	Exp	,124	,056	1,227	2,199	,031
	HP_high	,119	,091	,144	1,312	,194

	Sector M&E	-,069	,153	-,048	-,451	,653
	Sector Fin	,061	,155	,042	,390	,698
	y_2008	-,187	,122	-,207	-1,533	,130
	y_2009	-,123	,120	-,137	-1,019	,311
	y_2010	-,215	,134	-,205	-1,607	,112
6	(Constant)	-,152	,184		-,829	,410
	Ln_Rejection_Rate	,269	,103	,274	2,598	,011
	Exp_squared	-,009	,004	-1,322	-2,375	,020
	Exp	,124	,056	1,226	2,210	,030
	HP_high	,114	,089	,138	1,278	,205
	Sector M&E	-,074	,152	-,051	-,489	,627
	y_2008	-,178	,119	-,197	-1,495	,139
	y_2009	-,117	,119	-,131	-,985	,328
	y_2010	-,217	,133	-,207	-1,633	,107
7	(Constant)	-,166	,181		-,920	,361
	Ln_Rejection_Rate	,276	,102	,281	2,709	,008
	Exp_squared	-,010	,004	-1,375	-2,533	,013
	Exp	,129	,055	1,277	2,354	,021
	HP_high	,115	,089	,139	1,291	,201
	y_2008	-,180	,118	-,199	-1,525	,132
	y_2009	-,118	,118	-,132	-1,000	,321
	y_2010	-,223	,132	-,212	-1,693	,095
8	(Constant)	-,251	,160		-1,572	,120
	Ln_Rejection_Rate	,268	,102	,274	2,644	,010
	Exp_squared	-,010	,004	-1,401	-2,585	,012
	Exp	,131	,055	1,302	2,403	,019
	HP_high	,140	,085	,169	1,640	,105
	y_2008	-,113	,097	-,125	-1,162	,249
	y_2010	-,155	,113	-,148	-1,374	,174
9	(Constant)	-,273	,159		-1,717	,090
	Ln_Rejection_Rate	,283	,101	,288	2,797	,007
	Exp_squared	-,009	,004	-1,296	-2,420	,018
	Exp	,122	,054	1,208	2,250	,027
	HP_high	,151	,085	,183	1,780	,079
	y_2010	-,116	,108	-,111	-1,077	,285
10	(Constant)	-,324	,152		-2,130	,036
	Ln_Rejection_Rate	,272	,101	,278	2,705	,008
	Exp_squared	-,009	,004	-1,343	-2,513	,014
	Exp	,129	,054	1,275	2,389	,019
	HP_high	,152	,085	,184	1,788	,078

a. Dependent Variable: IRR

Appendix 2a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
10	,487[a]	,237	,197	,3677040

a. Predictors: (Constant), Ln_Rejection_Rate, Exp, HP_high, Exp_squared
b. Dependent Variable: IRR

Appendix 2c. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
10	Regression	3,194	4	0,799	5,906	,000a
	Residual	10,276	76	0,135		
	Total	13,47	80			

a. Predictors: (Constant), Ln_Rejection_Rate, Exp, HP_high, Exp_squared
b. Dependent Variable: IRR

Source: Author's elaboration

CSR – MORE THAN CORPORATE STORYTELLING?

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Abstract

Since the subject of corporate social responsibility (CSR) gained sufficient attention of the researchers over the last 25 years, numerous attempts were globally made to examine the nature of the relationship between the corporate social responsibility of company and its financial performance (FP). The literature in this area is scattered, the findings are heterogeneous and do not provide a clear answer if CSR goes beyond corporate storytelling. In our meta-analysis of more than 135 studies we try to bring a structure in this discussion. In analyzing the literature over the last decades we find a strong correlation between CSR and financial performance. Based on our findings we present implications in discussing how "good CSR" can be fostered. We focus on the financial sector.

Keywords: Corporate Social Responsibility, CSR Codes, Bank, Financial Performance

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1. Introduction

The question whether the management should run the corporation solely in the interests of shareholders (shareholder perspective) or whether it should take account of other constituencies (stakeholder perspective) is the foundation of Corporate Social Responsibility (CSR).

The stakeholder model (Blair, 1995) claims that the firm should serve wider interests of stakeholders rather than shareholders only. Stakeholders such as employees, creditors, suppliers, customers, local communities have long-term relationships with the firm and therefore affect its long-term success.

Corporate collapses at the beginning of the 21st century and a recent financial crisis have not only shaken the financial world but had an adverse effect on companies per se.

Leading banks received media coverage due to revelations of bonus plans and intransparent business practices. It seems that we are in a time where it is more important to be socially responsible than profitable. But from a research perspective the question remains if "being good" pays off for companies?

The purpose of this investigation is to review the research on the relationship between corporate social and financial performance over the last 40 years. We find that CSR is generally associated with a positive FP. Therefore it is crucial for companies to understand how good CSR should look like. Part 3 deals with the implications. Part 4 concludes.

2. CSR and financial performance reviewed

2.1 Motivation

The link between corporate social and financial performance could take the form of positive, negative, neutral and mixed relation (Simons and Kohers, 2002; Soana 2011). Waddock and Graves (1997) and Preston and O'Bannon (1997) offer a summary of previous conceptual explanations for a negative, neutral, and positive relationship between CSP and FP. A negative relationship is consistent with the neoclassical economist's argument that positive social performance causes the firm to incur costs that reduce profits and shareholder wealth. Preston and O'Bannon (1997) offer a "managerial opportunism hypothesis" as an explanation for a negative link. They suggest that when financial performance is strong, managers will reduce expenditures on social performance because they can increase short-term profitability and increase their personal compensation that is tied to short-term profitability. Conversely, when financial performance is poor, managers will attempt to divert attention by expenditures on social programs.

The finding of a neutral or no relationship is explained by the statement that the general situation of the firm and society is so complex that a simple, direct relationship between CSP and FP does not exist (Waddock and Graves, 1997). McWilliams and Siegel (2001) argue for a neutral, or nonexistent,

relationship between CSP and FP from a framework based on a supply and demand theory of the firm which assumes shareholder wealth maximization. They argue that firms produce at a profit-maximizing level, including the production of social performance. This leads each firm to supply different amounts of social performance based on the unique demand for CSP the firm experiences. In equilibrium, the amount of CSP produced by firms will be different but profitability will be maximized and equal.

Mixed relationship means that the connection between CSP and CFP could not be constant in time, and in different conditions could bring opposite results. Or different aspects of CSR could influence the company in different way that is why it is important for the companies to fix their attention on that activity that could bring strategic benefits.

The most interesting here is a positive connection. Several explanations for a positive CSR-FP link exist. First, one perspective is that a tension exists between the explicit costs of the firm, e.g. interest payments to bond holders, and the implicit costs of the firm, e.g. product quality or safety costs (Waddock and Graves, 1997). Attempts by the firm to lower implicit costs by socially irresponsible actions are hypothesized to result in higher explicit costs. In a similar vein, Preston and O'Bannon (1997) describe a "social impact hypothesis" which suggests that meeting the needs of various nonowner corporate stakeholders will have a positive impact on financial performance. A second viewpoint suggests that the actual costs of CSP are minimal compared to the potential benefits to the firm (Waddock and Graves, 1997). For example, the cost of providing employee benefits may be much less than the productivity gains that result. A third argument is that good management will do most things well, including the determinants of both social and financial performance (Waddock and Graves, 1997). A fourth explanation is the financially successful firm has slack resources as a result of its superior financial performance that can be devoted to social performance (Waddock and Graves, 1997; Preston and O'Bannon, 1997). Finally, Waddock and Graves (1997) suggest that there may be a positive CFP-FP link because of a simultaneous relationship combining slack resources and good management which results in a "virtuous circle" between CSP and FP. However their causal relationship seems doubtful.

2.2 Social performance

2.2.1 Uni- vs. Multi-dimensional indicators

Soana (2011) propose to divide the most spread methods of obtaining this measurement into five groups: content analysis, questionnaires, reputational measures, uni-dimensional indicators and ethical rating that we'd better call multi-dimensional indicators. It is important to understand here, that when we mention questionnaires and content analysis we suppose that they were made by the researchers themselves according to their methodologies. Reputational measurement, uni- and multi-dimensional indexes are usually made by special agencies or bodies through the use of questionnaires, content analysis and other instruments, so researchers do not calculate this data by themselves.

Content analysis usually means the evaluation of the area dedicated to social responsibility in documents published regarding companies. One can proceed with a simple count of words, lines or sentences, to the calculation of the amount of "social" information provided or with an analysis of their quality. The use of this method presupposes the acceptance of the hypothesis that social disclosure is a good proxy of corporate social performance;

Questionnaires are usually sent to top managers of the companies, analyzed by researchers who then elaborate the answers received giving an appraisal of the level of social performance achieved by the firms. The point is that such a judgment is, by character, purely internal and predominantly reflects the orientation and the perception of managers on the theme of social responsibility.

Reputational measures are ratios worked out by researchers or specialized journals/agencies that, on the basis of a subjective definition of social performance, calculate a score on the "goodwill" associated with the reputation a company may have. The approximation of CSR with reputational indicators implies the acceptance of two hypotheses:

- the "reputation" perceived by third parties is a good proxy of responsible behavior actually practiced by companies;

- the reputational measures are not influenced by the good financial-economic performance of companies.

Uni-dimensional indicators express a judgment on a single aspect of various socially responsible practices that companies can undertake. Environmental indexes are used more often.

Multi-dimensional indexes are usually elaborated by specialized agencies. Each agency has developed its own model of quantification on the social results of companies that foresee the selection of some indicators (for the most part concerning stakeholder typologies with which companies interface) to which is singularly attributed a score, then aggregated into a synthetic result (ethical rating) according to an arithmetic or weighted average. Very often such indexes suppose combining of questionnaires, content analysis, and other methods of gathering the information with further its transformation into the index.

To systematize previous research results on the link between CSR and FP we've decided to analyze previous works in this field. The undertaken analysis was divided into several fields: type of connection, country presented in the data sample, measure of the

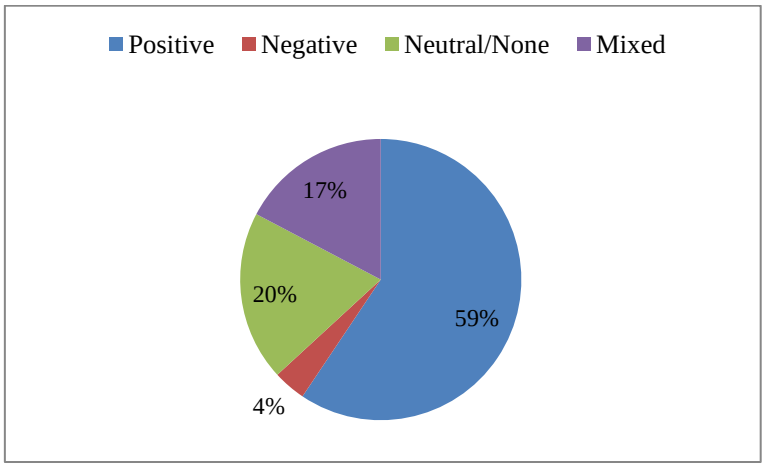
CSR in the companies, year of study. One more important issue that was picked up for the analysis is whether previous papers devoted special attention to banking institutions in their research. This information could help us to indicate the necessity of further research in the sphere especially in banks.

2.2.2 The Meta-Analysis

To analyze previous empirical research we've collected data on 135 papers from 1972 to 2013 presenting results of the investigations on the topic for 40 years.

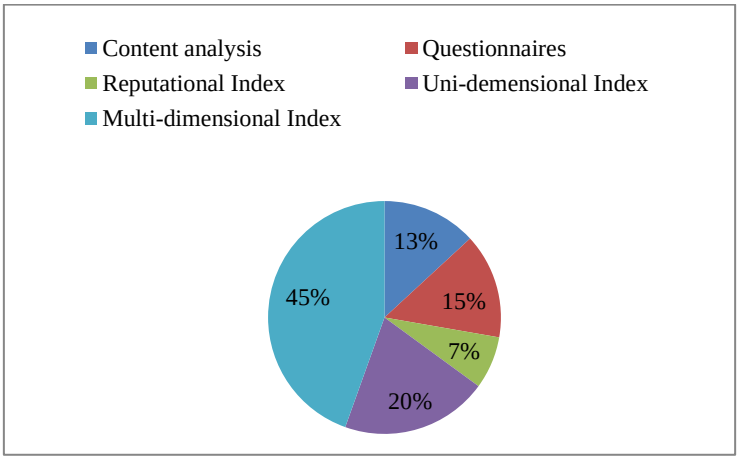
The first important outcome of the analysis is the type of the link that was found by the researchers. Almost 60% of papers showed positive correlation (see figure 1). It is important to remember here that positive relationship doesn't obligatory mean the causality and especially direction of causality. Nevertheless some papers which obtained positive correlation concluded that higher CSR provide financial benefits and increase financial performance. In this case endogeneity problem occurred and it was not solved in the majority of cases. It is also interesting to admit that only 4% of the analyzed findings showed negative correlation and supported hypothesis of the neoclassic theory. Almost similar result of 1/5 of all papers indicated neutral or mixed correlation. Mixed correlation occurred in those researches which found opposite or completely different results in different conditions. Such results depended on various control indicators, for example: country, industry, time period (before, after or in crisis), short-term and long-term effect, effect from different aspects of CSR and so on. None relationship was usually concluded when empirical results were not statistically significant.

Figure 1. Type of correlation between CRS and financial performance based on 135 previous empirical researches



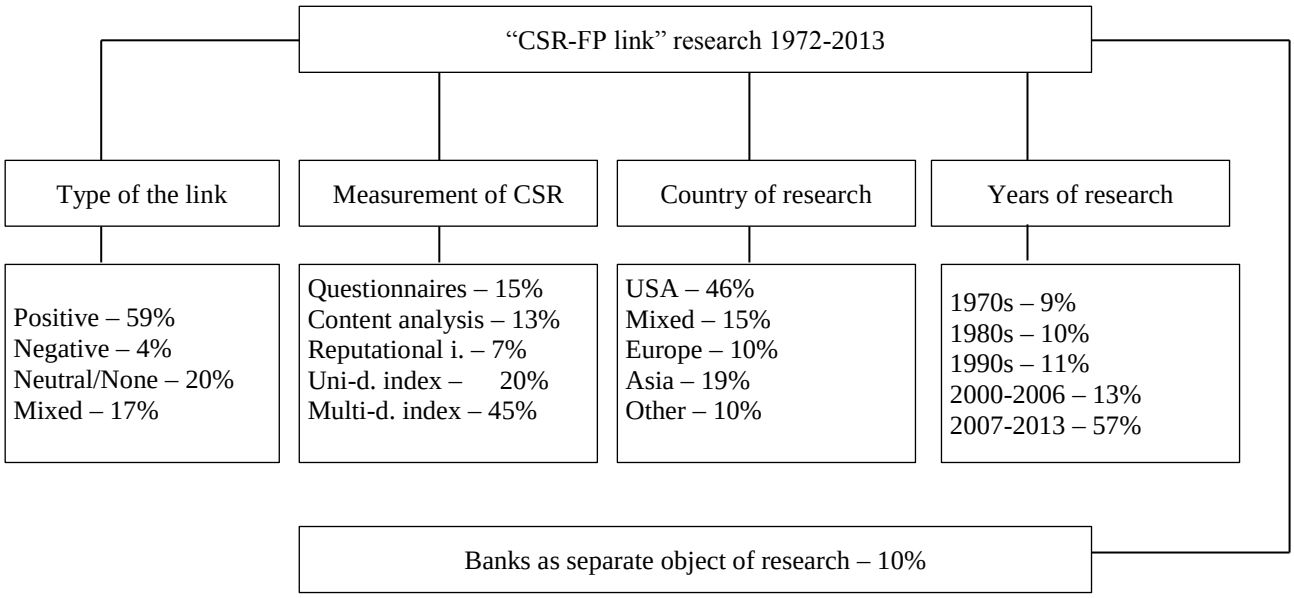
Another outcome of the analysis shows that 45% of all studies were conducted based on the data from the USA. Mostly all papers written on the topic in early years were conducted in the USA.

Figure 2. Measurement of the CSR used in 135 previous studies



From figure 2 we can see that multi-dimensional index is the most used measurement of the CSR. Researchers that base their analysis on the developed markets prefer using multi-dimensional indexes calculated by specialized agencies at they regarded to be mostly accurate and complicated. Such indexes as FTSE for Good and Dow Jones Sustainability Index are the most popular. They provide sophisticated data concerning different aspects of social performance during the long period of time. There are many other indexes that direct their attention on some regional markets, use different methodologies and provide final scores that can be hardly compared. Some authors proposed their own multi-dimensional indexes based on the disclosure of CSR by companies. Uni-dimensional indexes mostly presented by ecological indicators were often used during the early years of the investigation on this issue. Questionnaires and content analysis are popular in the studies based on the developing countries, as there is no professionally calculated index on these markets.

Figure 3. CSR studies – Meta analysis



We've also paid attention to the historical development of the studies and found out that in each period of 1970s, 1980s, 1990s, and during 2000-2006 years was conducted from 7% to 13% of the research in the sample. Period of 2007-2013 brought significant growth of the papers on the presented topic – almost 60 % from the whole quantity. Such a dynamic increase was made also because of the research made on the developing markets. So as we can see in recent years interest to the problem of link between CSR and FP is just increasing.

One of the key findings of the analysis was share of papers shat used data only from banking sector. Only 10% of studies were looking on current problematic in the financial sector. Data, methods, CSR measurement, geographical location applied by the authors was not homogenous and the results were different, presenting as positive, so non and mixed link between CSR and FP in the banking sector. The majority of other studies used mixed sample containing data from industrial and financial companies. But as Griffin and Mahon (1997) argue - multiple industry studies confound the relationship between stakeholders and appropriate measures of CSP and FP unique to those stakeholders. The empirical investigations show that industry is an important variable in multiple industry analyses. Manescu (2010) also mentions that banks have a role of intermediaries in the economy and their balance sheet structure is different from that of other sectors (which may adversely distort the distribution of the financial variables).

Based on the results presented above there is a clear indicator that good CSR pays off for companies. As different companies approach CSR differently, there can't be a "one size fits all" policy. Extra-legal codes in CSR might be helpful. The results of the meta-analysis also give us a perspective of future research in the field of banks and financial institutions.

3. Implications – how can good CSR be fostered?

3.1 CSR and self-regulation

Following the development of Corporate Governance, Corporate Social Responsibility has seen a vibrant development of "soft law" (Krejci, 2005) encompassing voluntary codes, elaborate ranking schemes and reporting initiatives. The voluntary, non-

enforceable and self-regulatory characteristics may be seen as the single most distinctive denominator of these corporate-oriented and corporate-inspired concepts.

Corporations invest considerable resources to shape the discussion of the responsibilities of business in general as one that should be based on voluntary measures. Hence, one reason why corporations develop and pledge themselves to non-binding codes is to prevent further formal regulation and even encourage deregulation. By pointing out the importance of business in the creation of ethical and sustainable standards and their willingness to take stakeholders into account, companies argue against the need of binding law.

The limits of law are highlighted by Stone (1975). Law is limited in its ability to regulate business behaviour in situations where the cost of enforcing laws may be too great, or the enforcement of laws would require the violation of higher values in the society, or ethical standards or norms for behaviour cannot be easily translated into objective, adjudicable, legal standards. Furthermore he points out the fact that law is primarily a reactive institution. Hence, even if laws could be passed to deal effectively with the problems, a great deal of damage can already be done until they are passed.

Considering those difficulties, one advantage of a code, as opposed to law, lies in its flexibility (Braendle and Wirl, 2004). Regulating every aspect of corporate behaviour would clearly be impossible, and statutory prescriptions would be inappropriate for many governance issues. The concept of codes as a complement, rather than a substitute for "hard law" is also emphasized by the European Commission (2002). This is especially true in the banking sector. Banks are used to self-regulatory regimes in many areas, such as compliance (Braendle, 2013).

With the help of voluntary codes dreaded regulatory competition could be avoided. Multinational corporations exercise pressure on national legislators which could lead to a "race to the bottom" (Monks et al., 2004) or "downward spiral" (Scherer et al., 2000) of company regulation. Although the "race to the bottom" discussion is very controversial (see Cary, 1974, Bebchuk, 1992), extra-legal codes could avoid this problem in presenting global standards of good governance and responsibility.

Furthermore, voluntary codes could free industries from the constraints which had been imposed on them during half a century of interventionist state policies (Cragg, 2005). Alongside these developments has been the emergence and increasing importance of supranational agencies and institutions, for example the OECD. However, few if any of these agencies and institutions have been willing or able to act in place of the state to make regulatory standards effective across national boundaries. Even when they are able to "legislate" (for example the International Labour Organization, hereafter: ILO), many countries refuse to treat such regulatory standards as binding unless they are incorporated into national law. Furthermore, those institutions seldom have effective regimes of enforcement and sanctions, which still have to be applied by states.

One response to this "vacuum of governmental regulation" (Murphy 2004) regarding corporate activity in international markets has been to urge more effective corporate self-regulation based on widely endorsed standards set out in the form of codes. Not only corporations are far more attracted to codes that are self-applied and tailored to their unique situations but civil society groups also note that governments in the developed world resist in regulating multinationals abroad, and if pressed to regulations, might set lower standards than may be achieved in voluntary codes.

Increased flexibility is another factor which could support the further development of extra-legal codes. According to McInerney (2004) it is not necessarily the fact that corporations evade regulatory initiatives that makes it difficult for regulators to catch up, rather that the problems are caused by the frequent changes in corporate practices. To put it in other words, the task of regulators has become more challenging, as they can no longer rely on consistent business practices in setting regulatory requirements.

Extra-legal codes can help regulators to deal with declining state resources, growth in the number of regulated entities and the complexity of business, as they entail the advantages of greater speed of response and flexibility in the face of changing circumstances, the ability to focus on the application of the spirit rather than the letter of the regulations, and the increased ability to draw on practitioner expertise which is made available at a reduced cost (Dewing et al., 2000).

3.2 CSR codes of conduct

Codes of conduct are extra-legal codes that can be seen as CSR instruments (Heal, 2004). They play a decisive role for multinationals to highlight their approach to their stakeholders.

Codes of conduct are typically focused on multinationals. They seek to promote a socially responsible conduct of these transnational actors in order to prevent harm or mistreatment of persons or the environment being caused by their operations. However, not all of these codes apply to all companies operating across borders, some are sector specific and others are issued by specific firms.

Thus, the codes also differ in authorship. Although international organizations like the UN, ILO or the OECD have taken the lead in promoting the concept of these voluntary codes to guide multinational's behaviour, there are also a vast number of guidelines issued by non-governmental

organisations such as Amnesty International, executives, governments, individual corporations or combined voluntary and governmental initiatives. A commonly agreed definition of codes of conduct does not exist. There is a variety of notions referring to this concept (Kverndal, 1976).

The functions and objectives of codes of conduct may be summarized in communication function, quality assurance function and the proliferation of social standards. The communication function is based on the idea that codes of conduct clearly specify the responsibilities towards stakeholders that a corporation has taken into consideration. Hence, they provide the public and (potential) investors with a source of information, which helps them to evaluate the social and ethical principles a corporation has committed itself to. These codes also serve as a signal that a company has considered the impact of its activities on society and has taken up the discussion regarding the role of stakeholders in corporate governance (contrary to a shareholder approach, where the shareholder is the only party which the company should serve).

Codes of conduct may be seen as having two objectives with respect to quality assurance. On the one hand they are supposed to assure the "quality" of a corporation's socially responsible behaviour. On the other hand the compliance with the code is seen to be positively related with improved performance. A clear cut definition of what it means being "socially responsible" does not exist. It is difficult to measure whether a corporation is fulfilling the requirements set for it. Furthermore, empirical studies regarding the effects of ethical codes on the employee's ethical decision- making reveal that the codes have either negative behavioural effects (Pater et al., 2003) or none at all (Cleek et al., 1998, Marnburg, 2000).

In the 1960s, advocates of corporate social responsibility put forward pragmatic arguments that supported the idea that an enhanced corporate social and environmental performance would also improve a company's financial performance (Carasco et al., 2003). Codes in this respect could help to create a cohesive corporate culture to build a sense of community among the company's employees (for the importance of a good business culture see Schein, 1992 and Braendle, 2005), whether they work at one or several locations. Heal (2004) argues that employees seek to work for "good companies", thus, a good CSR record can help a corporation to recruit, maintain and motivate employees.

Summarized, sound corporate relationships with stakeholders are directly related to good economic performance. Hence the compliance with a code of conduct is thought to translate into higher stock price or access to ethical investment flows, which are important issues especially in the financial sector.

4. Conclusions

In this study we argue that CSR initiatives of the companies have to be and indeed are beneficial not only for the society but for the organization itself. Although it is not always like that. The link between corporate social and financial performance could take the form of positive, negative, neutral and mixed relation. Nevertheless to prove our point we've conducted a meta-analysis of 135 previous studies on the link between CSR and FP. During the analysis we found out that almost 60% of studies indicated positive correlation. Another outcome of the analysis shows that 45% of all studies were conducted based on the data from the USA. The most complex proxy of the CSR - multi-dimensional index is the most used measurement of the CSR (45% of all studies), especially such indexes as DJSI and FTSE4Good. The most actively research in this sphere was conducted during the period of 2007-2013 that is represented by 60 % of all studies in the sample. We have also included into the analysis an issue concerning banking institutions because they have specific field of activity and structure of the balance sheet. That's why it is not advisable to mix companies from different industries especially financial and non-financial institutions. It occurred from our analysis that only 10% of studies directed their attention separately to the banks. Moreover we may state that these studies are not homogenous and do not provide clear answer on the link between CSR and FP in banks. These bring us a perspective for future research in the sphere. In this study we decided to direct our attention on the issue that can foster CSR in the companies and increase opportunity for getting benefits from responsible activity.

We highlight importance of specific codes that in the form of "soft law" help companies to take into account interest of stakeholders on the one hand and on the other protect them against binding laws. Codes compared to laws are more flexible and have better potential of preventing negative events rather than deal with consequences. So in some cases codes are a good complement to the laws and this is especially true in the banking sector. Banks are used to self-regulatory regimes in many areas, such as compliance. Extra-legal codes could avoid problem of regulatory competition and "race to the bottom" in presenting global standards of good governance and responsibility. Codes of conduct can be seen as CSR instruments. They play a decisive role for multinationals to highlight their approach to their stakeholders. The functions and objectives of codes of conduct may be summarized in communication function, quality assurance function and the proliferation of social standards. Codes of conduct may be seen as having two objectives with respect to quality assurance. On the one hand they are supposed to assure the "quality" of a corporation's socially responsible behaviour. On the other hand the

compliance with the code is seen to be positively related with improved performance. Codes could help to create a cohesive corporate culture to build a sense of community among the company's employees and thus result in better market value of the company and financial benefits especially in such sophisticated industry depending on reputation as banking.

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RISK ASSESSMENT AND CONTROL

Kameswari Peddada*

Abstract

"No pains! No gains!" No enterprise can run without some risk exposure. The outcome of risk exposure may be negative or occasionally positive. Losses from a negative outcome may be mild and acceptable or huge and unacceptable, leading to closure and serious effects on society and the nation. Good risk management with identification, assessment and control of risks faced is part of good management. Planning against risk at enterprise/company, national and international levels are required. Some such exposures may do no harm, but present new business opportunities.
The present study involves an extensive review of available literature on risk management. A reputed textile company has been selected for case-study of performance in terms of risk management.

Keywords: Risk, Risk Assessment, Risk Control, Risk Tolerance, Corporate Governance

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"The first step in the risk management process is to acknowledge the reality of risk. Denial is a common tactic that substitutes deliberate ignorance for thoughtful planning."- Charles Tremper

1. Introduction

Recent events in the world have brought risk into a higher profile. Terrorism, extreme weather events and the global financial crisis represent the extreme risks that society and commerce are facing. The risk of potential losses creates significant economic burden for businesses, government and individuals. Huge amounts are spent each year on strategies against potential financial losses. When losses resulting from risks are not planned in advance, they may cost even more. Risk of loss may not only make organizations sick, but also deprive society of services and are judged to be too serious. Lots of effort in planning for risk should be put forth well before any disaster strikes.

2. Definitions Of Risk

"A chance or possibility of danger, loss, injury or other adverse consequences." – Oxford English Dictionary

"Risk is often described as an event, a change in circumstances or a consequence creating uncertainty and the effect of the uncertainty on objectives." –ISO 31000

"Risk is the combination of the probability of an event and its consequence. Consequences can range from positive to negative."- Institute of Risk Management

3. Categories of Risk

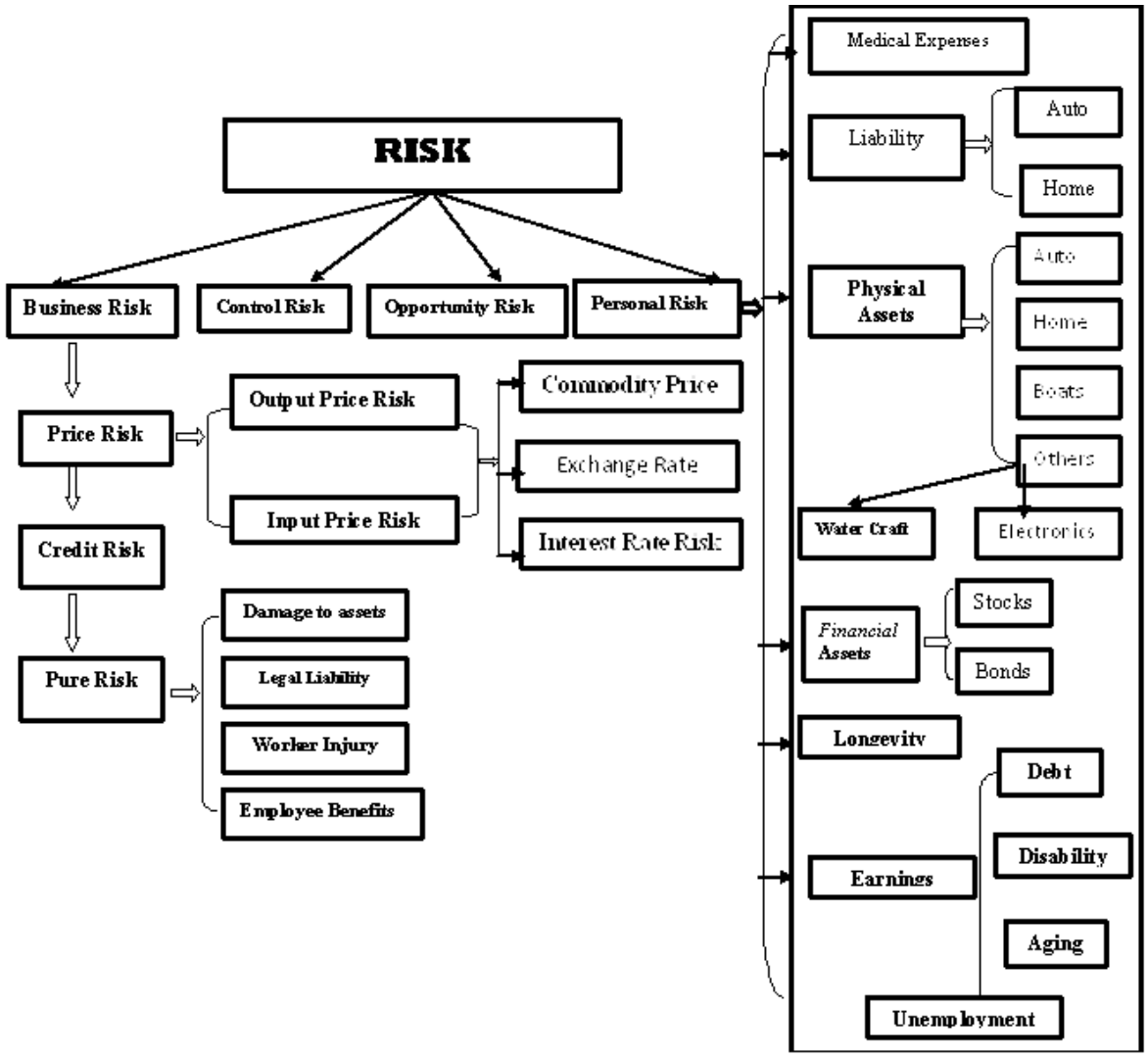
Risks are divided into the following categories:

3.1. Business Risk.

Concerned with possible reductions in business value from any source. Business value to shareholders, as reflected in the value of a firm's common stock, depends fundamentally on the expected size, timing and risk associated with the firm's future net cash flows. The major business risks that give rise to variations in cash flows and business value are price risk, credit risk and pure risk. "Price Risk" refers to an uncertainty over the magnitude of cash flows due to possible changes in output and input prices. Three specific types of price risk are: a.) commodity price risk: from fluctuations in the prices of commodities, like oil, gas and electricity, b.) foreign exchange rate risk: the fluctuations affect output and input prices due to globalization of economy, and c.) interest rate fluctuation risk: affecting output and input prices. "Credit Risk" is the risk arising when a firm's customers and the parties to which it has lent money delay or fail to make promised payments. "Pure (or Hazard) risk" is risk from events resulting in negative outcomes, like reduction in value of business assets due to physical damage, theft and expropriation, legal liability for damages from harm to customers, suppliers, shareholders and others, payment of benefits to injured workers under

workmen compensation laws and payments for death, illness and disability to employees as per the employees' compensation plans agreed upon.

Figure 1. Categories of Risk



3.2. Control/Uncertainty Risk

It is associated with unknown and unexpected events (called uncertainty) and can be extremely difficult to predict, quantify and control.

3.3. Opportunity/Speculative risk

There are risks or dangers associated with taking an opportunity, but there are also risks associated with not taking an opportunity. They may not be physically apparent, but are financial in nature. They are taken with the intention of having a positive outcome, which is not guaranteed, like acquiring new property, moving to a new location and diversifying into new products.

3.4. Personal Risks

Faced by individuals and families. Classified into 6 categories: a.) Earnings Risk: potential fluctuation in a family earnings from a decline in the value of an income earner's productivity due to debt, disability, ageing or a change in technology, b.) Medical Expenses Risk: (uncertain, unexpected and often costly), c.) Loss in the value of physical assets: owned by a firm, like automobiles, computers and home that can be lost, stolen or damaged, d.) Financial Asset Value Fluctuation: due to inflation and changes in real value of stocks and bonds, e.) Liabilities: like failure to repay due to interest rate fluctuations, home loans and vehicle loans. f.) Longevity Risk: from the possibility that retired people will outlive their financial resources.

4. Assessment & Control of Risk

Risk recognition and risk rating to determine the significant risks facing an organization, project or strategy together form the risk assessment component of Risk Management Process. It is defined as the overall process of risk identification, risk analysis and risk evaluation. An important feature of undertaking a risk assessment is to decide whether the identified risk is going to be evaluated at the inherent level or at the current (residual) level.

Step-I: Identification and Measurement of Exposures to Loss

The identification process begins with recognizing 4 categories of losses: a.) direct loss of property, b.) indirect losses of income, c.) liability losses and d.) loss of key personnel. This step is important, not only for traditional risk management, which focuses on pure risk, but also for enterprise risk management, where much of the focus is on identifying a firm's exposures to a variety of risk sources, including operational, financial and strategic activities. There are a wide range of risk assessment techniques available and a Final Draft International Standard (F.D.I.S.) has recently been published providing detailed information on the full range of risk assessment techniques that can be used.

Table 1. Risk Assessment

Technique	Brief Description	Advantages	Disadvantages
Questionnaire & Checklists	Information collected to assist in recognizing significant risks	1.Consistency 2. Involvement greater than in workshops	1. Missing of some risks 2. Questions from historical knowledge
Workshops & Brainstorming	To collect & share information & to discuss events impacting objectives, core processes or key dependencies	1.Consolidated opinions 2.Greater interaction→ more ideas	1. Domination by sr. Management 2. Issues missed if incorrect people involved
Inspections & Audits	Physical Insp. – premises & activities Audit- compliance with established systems & procedures	1.Opinion from physical evidence 2. Good structure from audit approach	1. More suitable for Hazard Risks 2. Historical Experience focus of audit approach
Flowcharts & Dependency Analysis	To identify critical components key to success	1.Useful output usable elsewhere 2. Better processes understanding	1. Difficult to use for strategic risks 2. Too detailed & time consuming
Hazard & Operability(HAZOP) Studies and Failure Modes Effects Analysis (FMEA) Approaches	Quantitative technical failure analysis techniques	1.Omits no risks ← structured approach 2.Wide range of personnel involved	1. Most easily applied only to Manufacturing 2.Analytical but time consuming
Strengths,Weaknesses,Opportunities&Threats (SWOT) & Political, Economic, Social, Technological, Legal and Environmental (PESTLE) Analysis	Offer structured approaches to risk identification	1.Well established techniques & proven results 2. SWOT linked to strategic decisions	1. Some risks may be missed 2. Rigidity restricts imaginative thinking

Source: F.D.I.S.

When a risk has been recognized as significant, an organization needs to rate the risk to assign priority in control. There are many different styles of risk matrix, the most common one relating the likelihood of a risk materializing and the impact of the event should it materialize. Other features of risk can be represented on a risk map for achieving further risk improvement.

Step-II: Loss Control & Risk Financing

'Loss control' activities are designed to reduce cost of loss and include the following risk management tools: a.) Risk Avoidance: The best method of dealing with an exposure to loss is to avoid all possibility of loss occurring. It means the chance of loss has been eliminated. b.) Loss Prevention: Successful activities lower the frequency of losses as mandated by several federal laws, like Occupational Safety and Health Act. c.) Loss Reduction: Such activities aim at minimizing the impact of losses. They are designed to reduce the severity of losses, like an automatic fire sprinkler system. 'Risk financing' determines when and by whom the cost of losses is borne, like risk assumption, risk transfer, hedging, self insurance & financed risk retention and insurance.

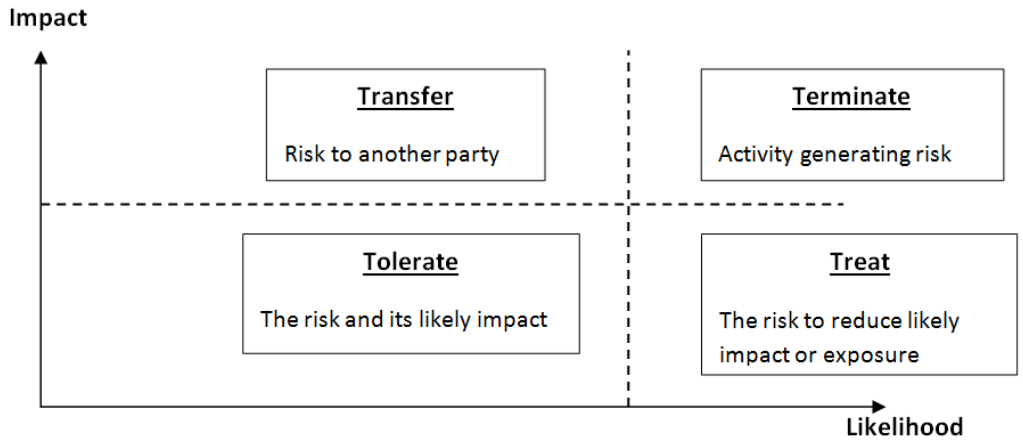
Step-III: Evaluation of Risk

For each source of risk identified, an evaluation should be performed. Pure risks can be categorized as to how often they are likely to occur. In addition to evaluation of loss frequency, an analysis of the severity of the loss is helpful. Consideration should be given both to most probable size of any losses that may occur and to the maximum possible losses that might happen. Computation of degree of risk in a meaningful way is possible in some situations, but not in others, especially when individuals are involved.

Step-IV: Selection of Techniques for Risk Management

The rational way of management: A. Avoid risk: Risks eliminated without adverse effect on the goals of an individual/ business. B. Implement appropriate loss control measures, like present value analysis. It can be useful in deciding how much money to spend on loss control. If the net present value of cash flows is positive, expenditures on loss control are justified.
C. Select the optimal mix of 4 Ts: As the diagram suggests, in each of the 4 quadrants of the risk matrix one of the 4 Ts will be dominant. Tolerate will be the main response for a low likelihood & low impact risk. Treat will be the dominant response for high likelihood & low impact risk. Transfer will be the dominant response for high impact & low likelihood risk. Terminate will be the dominant response for high impact & high likelihood risks.

Figure 2. Risk Matrix & The 4T's Hazard Management



D. High versus Low Loss Frequency & Severity classifications are useful in deciding on an appropriate risk retention and risk transfer. Risk retention tends to be optimal when expected severity is low, especially if expected frequency is high. Risk transfer is appropriate, when expected frequency is low, but there is high potential severity.

E. Capital budgeting & statistical analysis can be used to select the best mix of risk retention and risk transfer, accomplished through the selection of a deductible or the establishment of health insurance fund. Self Insurance may provide some financial advantages to a firm. Businesses considering self insurance should analyze their ability to predict probable losses, maintain accurate loss records and administer the many details of the arrangement and deal with large and unusual losses.

F. Implement and Review Decisions: Risk management should be an ongoing process, in which prior decisions are reviewed regularly. Sometimes

new risk exposures arise or significant changes in expected loss frequency or severity occur. Pure risks are not necessarily static; the dynamic nature of many risks requires a continual scrutiny of past analyses and decisions. A review of risk management plans is always useful.

5. Corporate Governance and Risk Management

Corporate Governance is the system by which organizations are directed and controlled. It is concerned with systems, processes, controls, accountabilities ad decision making at the highest level and throughout an organization. The purpose of corporate governance is to facilitate accountability and responsibility for efficient and effective performance and ethical behavior.

Corporate governance is the structures and processes for the direction and control of companies. It concerns the relationships among the management, board of directors, controlling shareholders, minority shareholders, and other stakeholders. Good corporate governance contributes to sustainable economic development by enhancing the performance of companies and increasing their access to outside capital. The Organization for Economic Cooperation and Development (O.E.C.D.) and the London Stock Exchange provide the overall requirements and framework within which corporate governance must be delivered. Risk management activities should be viewed within the wider framework of corporate governance. For government agencies robust corporate governance arrangements are usually mandatory. The main motivation for ensuring good standards of risk management in a typical government agency will be the desire to support the corporate governance arrangements in the agency. Corporate governance of risk management are designed to assist the organization to achieve its objectives, establishing a framework of control that supports innovation, integrity, and accountability and encourages good management throughout the organization. Risk governance in firms is the ways in which directors authorize, optimize and monitor risk taking in an enterprise. It includes the skills, infrastructure (i.e., organization structure, controls and information systems) and culture deployed as directors exercise their oversight. Good risk governance provides clearly defined accountability, authority and communication/reporting mechanisms. Risk oversight is the responsibility of the entire board. However, some boards use risk committees to help fulfill responsibilities. The risk committee might be independent, or the work might be combined with audit tasks and assigned to an audit and risk committee. Linking risk management efforts to corporate governance can also enable specific areas of risk to be identified for particular attention, like value for money, business continuity, fraud prevention and information technology security assurance.

6. Enterprise Risk Management (E.R.M.)

E.R.M. is "A comprehensive and integrated framework for managing credit risk, market risk, operational risk and economic capital and risk transfer in order to maximize firm value" (Lam, 2003). It views risk management as a coordinated value-creating activity and not just a mitigating activity. It does away with isolated and no-value-addition handling of each organizational risk. Some of the terms in common use in the context of an organization's risk approach are:

Risk Aversion: A manifestation of a general preference for certainty over uncertainty to minimize the negative outcome of an exposure.

Risk Policy: It is a crucial management guideline developed by and reflecting the aggregate risk aversion of decision makers, and specifying the types and degree of risks a company is willing to undertake in pursuit of its goals.

Risk Tolerance: It denotes the boundaries of risk taking, outside of which an organization is not prepared to venture in the pursuit of its long-term objectives.

Risk Appetite: It is the amount of risk an organization is willing to accept in pursuit of its long term objectives.

Risk Universe: It is the full range of risks that could impact either positively or negatively on the ability of an organization to achieve its long term objectives.

7. Regulatory & Policy Environment in India

The Indian banking industry is governed by a very diligent regulatory and supervisory framework. The Reserve Bank of India is the primary regulatory body for all banks in India. The RBI is the central bank of the country and is responsible for managing the operations of the entire financial system. The legal framework which governs the banking industry includes some umbrella acts like the RBI Act (1934), Banking Regulation Act (1949), Companies Act (1956), Banking Companies Act, SBI Act (1955), Regional Rural Bank Act (1976), Bankers' Books Evidence Act (1891), SARFAESI act (2002) and Negotiable Instruments Act (1881). The Reserve Bank of India is entrusted to be solely responsible for the regulation and supervision of banks. It is also empowered to inspect and regulate banks keeping in view the banking policy in place and in the interest of the banking system as a whole. The 'monetary authority' function of the RBI is also critical to the functioning of banks, as it has direct implications on interest rates and bank credit.

RBI regulates banking activities through several measures:

1. Branch Authorization Policy
2. Policy on Foreign Banks
3. Prudential Norms (concerning income recognition, asset classification and provisioning) are applicable to all banks in the country. Risk management and capital adequacy norms in the form of Capital to Risk-weighted Assets Ratio (CRAR) are enforced.
4. Exposure Limits, Exposure Diversification and Exposure to Capital Markets of banks for better risk management
5. Prudential Norms governing investment portfolio of banks
6. Various Foreign Investment Norms
7. Priority Sector Norms
8. Statutory Requirements: in terms of Cash Reserve Ratio (CRR) and Statutory Liquidity ratio (SLR)
9. Interest Rate Regime: in terms of deposits and advances
10. Supervisory Framework: especially-Risk Based Supervision (RBS)

8. International Regulations against Banking & Market Risk

The **Basel Accords** refer to the banking supervision accords - Basel I, Basel II and Basel III—issued by the Basel Committee on Banking Supervision (B.C.B.S.), whose secretariat is at the Bank for International Settlements in Basel, Switzerland. The committee does not have the authority to enforce recommendations, although most member countries as well as some others tend to implement the Committee's policies through their national laws and regulations. Basel Accords implemented via Capital Requirements Directive were designed to ensure the financial soundness of credit institutions (banks and building societies) and certain investment firms.

Basel- I (1988) focuses on the capital adequacy of financial institutions.

Basel -II (1996) focuses on three main areas (the 3 pillars): minimum capital requirements for credit, market and operational risks, supervisory review for additional capital for risks not covered by Pillar-I, and market discipline by requiring firms to publish details of their risks, capital and risk management. The focus of this accord is to strengthen international banking requirements as well as to supervise and enforce these requirements.

Basel-III (2011): The crisis in financial markets over 2008 and 2009 prompted a strengthening of the Basel rules to address the deficiencies exposed in the previous set of rules. The proposals were sought to strengthen the regulatory regime applying to credit institutions in the following areas.

- Enhancing the quality and quantity of capital.
- Strengthening capital requirements for counterparty credit risk (and in CRD III for market risk) resulting in higher Pillar I requirements for both.
- Introducing a leverage ratio as a backstop to risk-based capital.
- Introducing two new capital buffers: one on capital conservation and one as a countercyclical capital buffer.
- Implementing an enhanced liquidity regime through the Net Stable Funding Ratio and Liquidity Coverage Ratio.

9. Conclusion

"The world is a risky place." Individuals and business must face risk daily. Risk is everywhere and derives directly from unpredictability. The process of identifying, assessing and managing risk brings any business full circle back to its strategic objectives. It gets clear that not everything can be controlled. The local consequences of events on a global scale, such as terrorism, pandemics and credit crunches, are likely to be unpredictable. They can also include the creation of new and valuable opportunities. The modern practice of risk management is a systematic and comprehensive approach and should improve business resilience, increase predictability and contribute to improved returns. It involves a healthy dose of both common sense and strategic awareness, coupled with an intimate knowledge of the business, an enquiring mind and most critically superb communication and influencing skills. This is particularly important given the pace of change of life today. The understanding of risk may be summed up as:

- Risk is everywhere.
- Risk is a threat and an opportunity.
- People are ambivalent about risk and not always rational in the way they deal with it.
- Risks may be small/large, symmetric/asymmetric, continuous/discrete, macro/micro.
- Risk can be measured.
- Risk measurement and assessment should lead to better decisions.
- Key to risk management: deciding what to hedge, what to pass through and what to take.
- Good risk management is a good management.

Case Study: The Raymond Limited

1. Corporate Overview

Raymond Limited is India's leading textile and branded apparel company with interests in engineering business (files, tools and auto components). The corporate headquarters is in Mumbai. The Raymond Group was incorporated in 1925 and within a span of a few years transformed from being an Indian textile major to a global

conglomerate. In the endeavor to keep nurturing quality and leadership, they always chose the path untaken - from being the first in 1959 to introduce a polywool blend in India to creating the world's finest suiting fabric, the Super 250s, made from the superfine 11.4 micron wool. The Group is currently vertically and horizontally integrated to provide customers total textile solutions. Few companies globally have such a diverse product range of nearly 20,000 varieties of worsted suiting to cater to customers across age groups, occasions and styles. They manufacture for the world the finest fabrics - from wool to wool-blended worsted suiting to specialty ring denims as well as high value shirting. After making a mark in textiles they forayed into garmenting through highly successful ventures, like Silver Spark Apparel Ltd., EverBlue Apparel Ltd. (Jeanswear) and Celebrations Apparel Ltd. (Shirts). They also have some of the most highly respected fabric and apparel brands in their portfolio, like Raymond, Raymond Premium Apparel, Park Avenue, ColorPlus, Parx, Makers and Notting Hill. The Raymond Group also has an expansive retail presence established through the exclusive chain of 'The Raymond Shop' and stand-alone brand stores. They are now one of the largest players in fabrics, designer wear, denim, cosmetics & toiletries, engineering files & tools, prophylactics and air charter services in national and international markets. All their plants are ISO certified, leveraging on cutting-edge technology that adheres to the highest quality parameters while also being environment friendly.

Corporate Governance at Raymond: The structure of corporate governance consists of:

1.) Board of Directors: The Members of the Board with the permission of Chairman are free to bring up any matter for discussion at the Board Meetings and the functioning is democratic. The Board plays a key role in framing policies for ensuring and enhancing good governance. Besides its primary role of setting corporate strategies and goals and monitoring corporate performance, the Board directs and guides the activities of the Management towards achieving those corporate goals, seeks accountability with a view to achieve sustained and consistent growth aimed at adding value for its stakeholders.

2.) Board Committees: 1. Audit Committee, 2.Remuneration & Nomination Committee and 3. Committee of Directors (also Shareholders'/Investors' Grievance Committee). Each Committee has been mandated to operate within a given framework.

Corporate Governance at Raymond is a rigorous and well-established framework that helps to manage the Company's affairs in a fair, accountable and transparent manner. Responsible corporate conduct is integral to the manner of conduct of business and actions are governed by values and principles, which are reinforced across all levels within the Company. Guidelines and best practices have been evolved over the years to ensure timely disclosure of information regarding financials, performance, product-offerings, distribution network and governance. The Company's governance was ranked No.16 amongst India Inc's 50 most well governed companies in an independent survey published in the Fortune India Magazine (March 2012 edition).

To succeed, maintain sustainable growth and create long-term value requires the highest standards of corporate discipline. The Company continues to focus its resources, strengths and strategies to achieve the vision of becoming a global leader in Textiles, Apparel, Garmenting and Lifestyle Brands, while upholding the core values of quality, trust, leadership and excellence.

The Code of Business Conduct and Ethics, and the Charter-Business for Peace reflect their commitment to ethical business practices, integrity and regulatory compliances. The Raymond Code of Conduct for Prevention of Insider Trading further strengthens their philosophy. The Company has in place a robust Information Security Policy that ensures proper and appropriate utilization of Information Technology resources.

2. Overview of the World & Indian Economy

Global growth has been projected to be 3.5% for the year 2012. US economy is expected to continue its slow recovery, whilst the Euro-zone grapples with its debt-crisis. Notwithstanding the current economic environment, there are strong reasons to be bullish on India's long term growth potential. Favourable demographics and a large growing middle class with increasing disposal incomes support a strong consumption story.

3. Analysis and Review of the Textile Industry Conditions in India

The textile industry is one of the most important sectors in the economy and the second largest generator of employment after agriculture. It contributes more than 4% to the G.D.P. & 17% to the country's export earnings. The textile sector provides employment to over 3.5 crore people.

The Government of India proposes to increase the investment in this sector to generate more employment through various schemes, like Scheme for Integrated Textile Parks (SITP), Technology Upgradation Fund Scheme (TUFS), Integrated Skill Development Scheme (ISDS) and Technology Mission on Technical Textiles (TMTT). The allocation for this sector during the12th Five Year Plan (2012-2017) of India is proposed to be increased to around Rs. 49,650 crore (1 crore in Indian context = 10^7) as against an allocation of Rs. 14,000 crore during the11th Five Year Plan.

Opportunities and Challenges: The Financial year 2011-12 was an extremely challenging year, characterized by global slowdown, weak retail domestic demand, high volatility in cotton prices and foreign exchange and higher interest cost. There are challenges, which in the short term are likely to affect Raymond's performance – inflation, high interest rates, global competition, depreciating rupee, delays in policy initiatives to boost investments and capital flows and increasing cost of inputs due to frequent rise of minimum supportive price for cotton and other raw materials.

Performance Highlights: Despite the challenging business environment and weak market sentiments, especially during the second half of 2012, which is the peak season for textiles and apparel industry in the country, the Company's sales from the Textile Division registered a growth of 23%; the net revenue being Rs. 1864.61 crore in FY 2012, as against Rs. 1485.43crore in FY 2011. The Company managed to seize opportunities available to the textile and apparel sector on account of its brands resilience, strong domain expertise, state-of-the-art production facilities, emphasis on product innovation and growth potential in smaller towns & cities.

Market Share and Retail Network: Raymond is the market leader in India for high quality clothing, both fabric and apparel, in FY 2012. The Company continues its focus on retail network expansion during this financial year. The Company is operating through more than 800 retail stores, which include TRS (The Raymond Shop) and EBOs (Exclusive Brand Outlets), covering more than1.6 million sq. feet of dedicated retail space (including overseas). The Company's Brands are available across 30,000 plus points of sale. In FY 2012, the Textile Division's domestic sales were Rs. 1668.91 crore as compared to Rs. 1349.03 crore in FY 2011. During FY 2012, the Company opened 100 TRS stores and continues to be prudent in its selection of store locations.

Exports: The Company has shown a remarkable growth of 44% during FY 2012. The textile exports during 2012 were Rs. 195.70 crore as against Rs. 136.40 crore in 2011.

Raw Material: Wool prices remained high in 2012 and the depreciation of the rupee made wool imports costlier. Polyester fibre prices have been volatile but have ended soft during the year.

4. Risk Management by Raymond

The Company has been exposed to risks from market fluctuations of foreign exchange, interest rates, commodity prices, business risk, compliance risks and people risks.

Foreign Exchange Risk: The Company has been actively managing the long-term foreign exchange (Forex) risk within the framework laid down by their Board-approved policy.

Interest Rate Risk: The Company has adopted a prudent and conservative risk mitigating strategy to minimize the interest costs in the face of interest rate fluctuations.

Commodity Price Risk: Exposed to the risk of price fluctuation on raw materials as well as finished goods in all products, the Company proactively manages these risks in inputs through forward booking, inventory management, proactive management of vendor development and relationships. The Company's strong reputation for quality, product differentiation and service, the existence of a powerful brand image and a robust marketing network mitigate the impact of price risk on finished goods.

Risk Element in Individual Businesses: Apart from the risks on account of interest rate, foreign exchange and regulatory changes, various businesses of the Company are exposed to certain operating business risks, which are managed by regular monitoring and corrective actions.

Compliance Risks: The Company is exposed to risks attached to various statutes and regulations, including the Competition Act, 2002. They are mitigating these risks through regular reviews of legal compliances, through internal as well as external compliance audits.

People Risks: Retaining the existing talent pool and attracting new manpower are major risks. The Company has initiated various measures such as rollout of strategic talent management system, training and integration of learning activities. The Company has also established 'Raymond Leadership Academy' which helps to identify, nurture and groom managerial talent within the Raymond Group to prepare them as future business leaders.

5. Remarks on Risk Performance

In the face of threats and opportunities faced by the textile sector, both domestically and internationally, the Company has been utilizing inherent strengths to overcome the weaknesses imposed internally and externally. Well thought-out and researched risk management policy and strategies have made Raymond the market leader and enable it to retain that position in the face of so many uncertainties faced.

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BUILDING THE FOUNDATIONS FOR A NEW CENTRAL BANK DOCTRINE: REDEFINING CENTRAL BANKS' MISSIONS IN THE 21st CENTURY

Eric Pichet*

Abstract

The 2007-2008 financial crisis demonstrated both the responsibilities that central bankers, alongside other actors, bear for turbulences of this kind as well as how economics can be used to provide central bankers and governments with the understanding and tools that they need to prevent the international financial system from collapsing. At the same time, central banks' responses to the crisis have taken monetary policy into unknown territory. The paper's first section diagnoses good and bad practice in post-crisis central banking; assesses the efficiency of pre-crisis doctrines; and identifies the dangers of actions exceeding certain limits. It specifically focuses on the European Central Bank's much-debated intervention in certain peripheral bond markets, particularly Greece. The second section is more normative and lays the foundations for a social science perspective of how to manage modern central banks, an approach that draws on a variety of disciplines including economics, governance theory and management. This starts with a definition of the new doctrine and its underlying philosophy, followed by an identification of sound central banking practices (revolving around a few key concepts, notably inflation and financial stability). The missions and objectives of these practices are then defined (along with a choice of indicators), culminating in an exploration of which strategies and tools might be used in both normal and turbulent times. Lastly, a few concrete rules of governance are offered, built on the triptych of central banks' independence, accountability and composition, with specific focus placed on the process for selecting governors fit to handle the new role that modern central banks are destined to assume in developed countries.

Key Words: Central Bank Doctrine, Monetary Regulation, Crisis

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Introduction

A brief history of central banking: from financing the state to lending of the last resort

The birth of central banks is clearly linked to states' funding needs and financial institutions' savings capacities. The first central bank, RiskBank, was established in Sweden in 1668[1] in an attempt to save Stokholm Banco, the country's only bank at the time, from bankruptcy. Born in 1694 following the *Glorious Revolution*, the Bank of England (BoE) was a private institution endowed with a government charter. Primarily designed to curb market debt and finance the Crown's wars against Jacques II and Louis XIV[2], because the BoE could also hold other banks' deposits, it slowly began to assume the role of a bankers' bank, facilitating inter-bank transactions while providing ancillary services. With large gold reserves cementing its repository role, it eventually began to act as a lender of last resort whenever there was a run on the bank system.[3] After another severe crisis in 1866, the BoE began to apply Walter Bagehot's responsibility doctrine,[4] based on the idea

[1] The main and most famous contribution of this central bank is probably the so-called Nobel Prize of Economics (created in 1968 by the Bank of Sweden for its 300th anniversary), which has been in return provided the means to develop economics thoughts and research on central banks... as this paper exemplifies.

[2] In the same manner, the Banque de France was set up in 1800 by Napoleon to fight inflation and finance his wars.

[3] But in fact, actions by the bank often worsened financial crises on several occasions (1825, 1837, 1847, 1857, and 1866) because the bank acted in its own interest to protect its gold reserves and, thus did not provide liquidity to other banks.

[4] According to Goodhart, Bagehot's main ideas come from Henry Thornton, An Enquiry into The Nature and Effects of the Paper Credit of Great Britain 1802. In Bagehot's own words (Lombard Street, Chapter 7, paragraphs 57-58; London: Henry S. King and Co., 1873), "lending by the central bank in order to stop a banking panic should follow two rules: First. That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity, and will prevent the greatest number of applications by persons who do not require it. The rate

that a central bank's task is to provide liquidity to other banks, discounting secure collateral and lending funds at a penalty rate of interest so borrowers have an incentive to repay quickly.[5] Despite national variations, the main objective for most central banks before the 1929 crash was to safeguard the value and stability of currency.[6] In the United States, banking crises were commonplace following the elimination of a central bank in 1836. The 1907 crisis[7] convinced Americans to accept a federal entity responsible for managing the national currency and acting as lender of last resort.[8] It remains that prior to 1929, central banks were managed at governors' discretion, without any real research being conducted into appropriate doctrine or governance[9].

The doctrine of central banking since 1979: a neo-Keynesian framework with a monetarist credo

Before the 2007-2008 crisis, central banking applied a simple doctrine that was largely underlined by one main objective (the battle against inflation), one main monetary policy (short-term interest rates) and one tool (open market operations).[10] Given the United States' global influence and the dollar's pivotal role, practices at the Fed had a particular impact on other central banks' philosophy and doctrines. General banking missions and tools have evolved to promote two hypotheses at this level: inflation is always a monetary phenomenon;[11] and financial markets are efficient[12]: the underlying philosophy was that a view where financial markets select risk and distribute credit correctly. Under exceptional circumstances (e.g., September 11, 2001), the central bank could act as lender of last resort – but in the main, central bankers were generally little more than backroom technocrats before the recent crisis, an unelected and rather unexciting bunch of players (with the exception of a few stars like Greenspan, Trichet or Bernanke. Thus, the Fed injected liquidity into the financial system during the 1987 stock market crash,[13] and agreed to assume the liabilities of Long Term Capital Management in 1998 - but it never accepted responsibility for pricking financial bubbles. The premise of central banking was rooted in a neo-Keynesian model in which the CPI rate (around 2%)[14] was sometimes made explicit. In the main, strategy was determined by the Taylor rule.[15]

should be raised early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; that the Banking reserve may be protected as far as possible. Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public ask for them. The reason is plain. The object is to stay alarm, and nothing therefore should be done to cause alarm. But the way to cause alarm is to refuse someone who has good security to offer. . . . No advances indeed need be made by which the Bank will ultimately lose. The amount of bad business in commercial countries is an infinitesimally small fraction of the whole business. . . . The great majority, the majority to be protected, are the 'sound' people, the people who have good security to offer. If it is known that the Bank of England is freely advancing on what in ordinary times is reckoned a good security—on what is then commonly pledged and easily convertible—the alarm of the solvent merchants and bankers will be stayed. But if securities, really good and usually convertible, are refused by the Bank, the alarm will not abate, the other loans made will fail in obtaining their end, and the panic will become worse and worse."

[5] The doctrine required the BoE to subsume its private interest to the public interest of protecting the banking system as a whole. The end result was that no bank run or panic happened until… September 15, 2007, when Northern Rock collapsed.

[6] The word inflation is relatively recent given the almost perfect price stability before World War I. The UK and France issued the most famous government bond of the era, the 3% perpetual rent.

[7] The short-term interest rate rose to 125% during the 1907 crash; see E. Lefevbre, Reminiscences of a Stock Operator New York: Wiley, 2009). French translation By E. Pichet Mémoires d'un spéculateur, Valor, 2004.

[8] Yet politicians remained sceptical: The Federal Reserve (which, quite significantly, was denied the title o central bank by its founder, Carter Glass) had no macroeconomic objectives.

[9] Norman Montagu, Governor of the Bank of England from 1920 to 1944, replied regularly to people enquiring about his monetary policy: "I don't have reasons, I have instincts." For an analysis of general misapprehensions about the four most important central bankers between 1918 and 1940, read L. AHAMED, Lords of Finance, New York: Penguin, 2009.

[10] In fact, the official objective of central banks throughout the developed world is also to fight unemployment and pursue a pro-growth policy. Yet explicitly or implicitly, the main objective is always to keep a close eye on inflation (always understood as consumer prices). After the Great Depression of the 1930s, the Fed was given the extra responsibility of maximizing employment and it was one of the main objectives of the Employment Act of 1946. The Full Employment and Balance Growth Act of 1978 had two objectives: low inflation and optimal employment.

[11] Based on Friedman's famous assumption that "Inflation is always and everywhere a monetary phenomenon", c.f. Inflation, causes and consequences, 1963.

[12] Based on research by Markowitz, Portfolio Selection, The journal of Finance 7 (1) 77-91, March 1952.

[13] On October 19, 1987, the "Federal Reserve, consistent with its responsibilities as the nations' central bank, affirmed today its readiness to serve as a source of liquidity to support the economic and financial system setting up a new philosophy of supporting the financial markets when they fell". Since 1987, this so-called Greenspan doctrine had given economic agents too great a sense of security.

[14] Analyzing each central bank's attitude toward inflation in great detail serves no useful purpose. Every modern bank is explicitly committed to fighting inflation (irrespective of the stringency of the objectives set by the politicians or by the bank itself). As Mervin King, ex- Governor Bank of England said, no central banker is enough of an "inflation nutter" to be obsessed by this to the exclusion of everywhere else.

[15] The Taylor rate dictates that the Fed rate = 1+ inflation rate +½*(inflation rate-2) + ½* (spread between potential an actual growth of GDP). "To caricature: we thought of monetary policy as having one target, inflation, and one instrument, the policy rate. . . . Stable and low inflation was presented as the primary, if not exclusive, mandate of central banks" O. Blanchard, G. Dell'Ariccia, and P. Mauro. 2010. "Rethinking Macroeconomic Policy," IMF, p. 3.

A time of crisis: from innovative fire extinguishers to architects seeking new foundations

During the crisis - and especially in its early stages (2007 and 2008) - central banks reacted realistically and pragmatically by lowering interest rates (Some commentators have criticized the attitude of the European Central Bank (ECB) and notably its decision to raise interest rates to 0.25 bp in late August 2007. These observers made the mistake of being anachronistic, analysing the decision in the context of the most severe deflationary pressures that the world economy had witnessed since the 1930s. In fact, the ECB's attitude at that time, when faced with a 4% rate of inflation and a more than 11% increase in the monetary mass (M3), was fully understandable and the ECB quickly lowered its interest rates to historic lows). Afterwards, things became increasingly complex, with the main question becoming whether central banks should be subject to macro-economic regulation, systemic supervision and even the oversight of all financial institution (Maintaining the separation between monetary policy and macro- or even micro-prudential policy).

The first questions at this level are whether central bankers' customary 2% CPI target rate should be modified (Blanchard suggests 4%, others say 0% and others still suggest a range.); if central banks' aims should be broadened to include asset (For example, stocks prices, property prices, etc) inflation and preventive action against future bubbles; and whether modern developed societies might give their central banks a new financial stability mission alongside their traditional goal of monetary stability.

Analytical framework

The paper's first section diagnoses good and bad practice in post-crisis central banking; assesses the efficiency of pre-crisis doctrines; and identifies the dangers of actions exceeding certain limits. It specifically focuses on the European Central Bank's much-debated intervention in certain peripheral bond markets, particularly Greece. The second section is more normative and lays the foundations for a social science perspective of how to manage modern central banks, an approach that draws on a variety of disciplines including economics, governance theory and management. This starts with a definition of the new doctrine and its underlying philosophy, followed by an identification of sound central banking practices (revolving around a few key concepts, notably inflation and financial stability). The missions and objectives of these practices are then defined (along with a choice of indicators), culminating in an exploration of which strategies and tools might be used in both normal and turbulent times. Lastly, a few concrete rules of governance are offered, built on the triptych of central banks' independence, accountability and composition, with specific focus placed on the process for selecting governors fit to handle the new role that modern central banks are destined to assume in developed countries

1. Analysis of Central Bank Actions before and During the Last Financial Crisis

It is important to note that the crisis was in no way the consequence of subprime lending, which should be construed as little more than a virus attacking a fundamentally sound but fatigued organism - the US economy – weakened by its considerable debt (see Figure 1). Any turbulence affecting the US economy – which accounts for ca. 25% of global GDP – was bound to have a knock-on effect on the rest of the world.

Figure 1. The USA total Debt as % of GDP

1.1. Central bankers' responsibility for the origin of the crisis

"The responsibility of the central bank is to put away the punch bowl just as the party gets going."

W. McChesney Martin, chairman of the Fed (1951-1970)

Central bankers' real involvement in the crisis has been a topic of great debate. For several reasons, this paper takes the view that there is little doubt that they bear at least some responsibility. The so-called subprime crisis happened very suddenly, but its roots go as far back as the aftermath of September 11, 2001. The Fed had reacted very quickly to the attacks on the World Trade Centre by dropping interest rates to minimal levels (1%) in an attempt to stave off recession, but the end effect was that from 2001 to 2006, US central bankers injected cash into the financial system and encouraged subprime lenders (amongst others) to raise total US debt levels even higher than they had been in 2001, which already equaled the excesses of 1929. In other words, the financial crisis was also rooted in mistakes made by the Fed, which from 2002 to 2007 and in violation of the Taylor's rule failed to act quickly enough to prick the bubble it had created.[1] During the 1960s, Keynesian[2] doctrine had achieved a balance between inflation and employment but t his changed in 1979 when the Fed adopted a newly hawkish focus on inflation.

Mr. Greenspan was also wrong in asserting that the market alone is in a position to recognize (hence prick) a bubble. The implication of his doctrine was that the Fed should allow bubbles to happen, and simply mop things up afterwards by limiting the collapse in prices and collateral damage to the rest of the financial system.[3] His approach failed with the 2007-2008 financial crisis, however, since the end effect of the Greenspan paradox was to sew the seeds of further bubbles and undermine central bank credibility. This can be contrasted with Minsky, according to whom the crisis germed during the quiet period and it seems correct to assume "that the Fed could be accused of being a serial bubble blower."[4]

A failure of regulation and supervision

The Anglo-American model for controlling financial institutions in the United States and the United Kingdom was characterized by so-called light touch regulation. "With the neglect of financial intermediation as a central macroeconomic feature, financial regulation and supervision focused on individual institutions and markets and largely ignored their macroeconomic implications."[5] This attitude probably led to the 1999 repeal of the Glass-Steagall Act in the United States; the Fed's attitude of benign neglect toward the property bubble; and the "light touch" with which the United Kingdom's three official regulators (the Bank of England, the Treasury, and the FSA) oversaw the country's banks and financial markets in the attempt to preserve London's attractiveness as a financial center. The most extreme cases of authorities falling asleep on the job were in Ireland[6] and Iceland. At the same time, some responsibility for this lax state of affairs must also be attributed to the watchdogs of the global financial system: neither the OECD nor the IMF showed any real awareness of dangers of the real estate bubble, or of the risks associated with the mountain of debt accumulating in the United States and elsewhere. Moreover, what regulations existed were full of holes, with the Fed neglecting to monitor the non-banking system. The examples of Bear Stearns, Lehman are very instructive at this level.

1.2 At first, the central bank reacted conventionally - and correctly – to the crisis

"Why did nobody notice it?"

Queen Elizabeth II - said to have lost about £25 million in September 2008 – during a November 5, 2008 briefing at the London School of Economics

There is little doubt that the overwhelming majority of economists failed to anticipate the crisis[7]: as Ben Bernanke explained,[8] "Almost universally, economists failed to predict the nature, timing and severity of the crisis; and those few who issued early warnings generally identified only isolated

[1] This mistake was already witnessed when the Bank of Japan waited far too long to raise rates from 2.5% at yearend 1989 to 6% in August 1990 and subsequently 0.5% in September 1995. Regarding errors made by the Bank of Japan, see Bernanke, Japanese Monetary Policy: A Case of Self-Induced Paralysis, December 1999, p.3.

[2] The standard macroeconomic model used by central bankers—the "dynamic stochastic general equilibrium" (DSGE) — was not an accurate representation of this model, which featured households, non-financial institutions and government - but no banks. See "The intellectual support for inflation targeting provided by the New Keynesian Model," Blanchard et al., "Rethinking Macroeconomic Policy," p. 3.

[3] Strategies repeatedly adopted in 1987 after the stock market crash, during the dotcom stock bubble, and when house prices skyrocketed in the 2000s.

[4] A. Blinder, "Two Bubbles, Two Paths," New York Times, June 15, 2008.

[5] Blanchard et al., "Rethinking Macroeconomic Policy," p. 6.

[6] Bailing out the Irish banks cost about 40% of GDP, which was a major factor in the debt-GDP ratio's jump from 25% in 2007 to 115% in 2012.

[7] Remember Solow's analysis: "The economist is a little bit as a plumber; he can fix the problem but not necessarily predict at what time the plumber will be out."

[8] B. S. Bernanke, On the Implications of the Financial Crisis for Economics, conference at Princeton, NJ, September 2010, page 2.

weaknesses in the system.[9], not anything approaching the full set of complex linkages and mechanisms that amplified the initial shocks and ultimately resulted in a devastating global crisis and recession." The strongest evidence for the contention that economics is a science - a famous debate amongst scientists[10] - lies in the fact that the knowledge accumulated is useful not only for scientists but also for politicians and central bankers. Economics improves itself, as witnessed most notably by the Fed's creation in 1913, once the lessons of the 1907 crash had been learned, specifically in relation to the absence of a lender of last resort.[11]

Lessons from 1933 and Japan's lost decade

In general, the system's first response teams — central banks and governments—moved very quickly and effectively to implemented the knowledge that economists had accumulated over the previous century. Bernanke's Ph.D thesis on the Great Depression[12] had made him perfectly aware of the risks involved, as had his analysis of Japan's lost decade, a disastrous period of economic stagnation and deflation from 1991 to 2001 once the country's stock market bubble had burst.[13] Central bank economics improved significantly in the wake of the 1907 panic, a trend that continued through the 1929 crash and ensuing Depression. Indeed, there are signs of advances in knowledge from the 1970s until 2002. The quality of governance, epitomized by the main central banks' highly competent leaders in their field of competency (monetary policy), is clear to see, especially in comparison with their predecessors from the 1930s.[14] Indeed, from 2007 to 2010 central bankers would generally apply the lessons that they had learnt from previous financial debacles. Analysis of the 1907 bank panic of 1907 reveals similar causes as the current crisis. In a context of light regulation and major investment opportunities, trust companies used leverage to expand at a remarkable speed.[15]

[9] As with each financial disaster it is always possible to identify a few economists who did in fact anticipate the crisis. Most, however, never saw it coming.

[10] In simpler terms, there is still a debate between the hard natural science and soft social science. Most researchers in the former field deny social researchers' right to call themselves "scientists", ostensibly because of their lack of rigour. Yet "of we consider the most complex object in the universe, besides the universe itself, to be the human brain, then human societies - and particularly the societies of today's hypermodern era which derive from the interaction between thousands of human minds (and even, since globalisation and the advent of the internet, of the interaction of billions of human minds) - are far and away the most complex entities there are to study." In Éric Pichet, "L'art de l'HDR," (2011), p. 115.

[11] After the 1929 Crash and ensuing Depression, the Fed tightened policy, because it wanted to stifle any further stock market booms. This was a major mistake, especially the failure to use open market policy to offset a series of banking panics. Having said that, the 1929 financial crisis did have several very important legacies, starting with the Emergency Banking Act from March 1933 and above all the creation of the Federal Deposit Insurance Corporation (FDIC). In 2010, the FDIC closed 157 banks (after closing 140 in 2009) without causing any damage to the financial system. Retail depositors in the US do not lose a single penny up to the insurance limit of $250,000 per person. The losers are the bank's owners and top managers. Seeking to prevent bank runs and collapses, the FDIC has been successful in preventing systemic panic, bolstered by the Glass-Steagall Act, which segregated commercial and investment banking. Otherwise, there is the Securities and Exchange Commission, established by the 1934 Securities Act. Note that from 1934 to 1936, the US economy seemed to be perfectly healthy, achieving an astonishing annual rate of growth of more than 9%. Unemployment fell from 25% to 14%. Two measures caused a violent recession in 1937 and 1938, however: Congress decided to raise new taxes; and the Fed, worried by the huge cash reserves held by US banks, doubled their reserve requirements, causing immediate monetary contraction and a new and violent recession. In 1938, President Roosevelt reset a contra-cyclical policy and the US GDP rebounded by +9% in 1939.

[12] To confirm the usefulness of the economics profession, note Bernanke's quite grand declaration in 2002 on the occasion of Friedman's 90th birthday:"You are right; we were wrong but thanks to you, we will not be wrong anymore."

[13] Japanese monetary policy displayed a case of self-induced paralysis in December 1999. From June 1991 to June 1996, the interest rate dropped from 6% to 1%. In March 1999, it was near zero. The error was that monetary policy had been too loose before 1900 and too strict from 1990 to 1995. As noted by Bernanke, the policy mistakes that Japanese officials made in 1990 were similar to policymakers worldwide 1930s and resulted from the"the inherent conservatism of a society that places so much value on consensus." The same criticism could be made in 2013, with the new Abe government pressuring the Bank of Japan to raise its inflation objective from 1% to 2%. Bernanke and Gertler mentioned Japan's exceptionally poor monetary policy-making from 1984 to 1999 in Bernanke and Gertler, "Monetary Policy and Asset Price Volatility," Proceedings (Kansas City: Federal Reserve Bank of Kansas City, 1999), pp. 77-128, with "the failure to tighten policy during 1987-1989, despite evidence of growing inflationary pressures, a failure that contributed to the development of the "bubble economy," the apparent attempts to "prick" the stock market bubble 1989-1991, which helped to induce an asset-price crash; and the failure to ease adequately during the 1991-1994 period, as asset prices, the banking system, and the economy declined huriedly." Japanese Monetary Policy: A Case of Self-Induced Paralysis, December 1999, p. 3.

[14] For an astonishing picture of big four central bankers' failing before the Second World War, see Ahamed, Lords of Finance, Windmill Books, 2010.

[15] E. W. Tallman and J. R. Moen. "Lessons from the Panic of 1907." Economic Review (1990, May/June).
After the April 1906 San Francisco earthquake, insurance companies faced substantial costs to rebuild the city. In October 1907, at the height of the panic and after the closure of one of the most prominent financial institutions—The Knickerbocker Trust Company—the stock exchange fell by more than 40% and short-term rates hit 100% on the market for call loans. President Theodore Roosevelt asked J. P. Morgan and John D. Rockefeller to help rescue the economy by setting up money pools. This was a crisis of liquidity, not solvency, which can be better described as a short and brutal contraction in economic growth, followed by steady rise. Suddenly waking up to the the financial system's weaknesses and the robber baron's oligopolistic position of the robber barons, Congress established the National Monetary Commission in 1908 and gave it the mission of analyzing fundamental reform. Two important laws were fashioned to address the two main problems: the December 23, 1913 Federal Reserve Act, creating a lender of the last

Putting out the fire

When the crisis began on August 9, 2007, the ECB injected liquidity into the markets to offset the credit crunch that erupted in the wake of BNP's money market funding crisis. Lending to illiquid banks was the first tool that the Eurozone banks would use,[16] with liquidities being injected just after Lehman's collapse in an attempt to unfreeze the interbank market. To keep the economy's normal funding circuits in operation, the central banks tried to ensure that no financial institution would go bankrupt and that deposits would stay safe. Indeed, towards yearend 2012, the Fed announced that its near zero interest rate policy would remain in place not only through 2015 but for as long as the unemployment rate exceeded 6.5%. The Eurozone has implemented more or less the same strategy with its long-term refinancing operations, which is now meant to last three years as opposed to a maximum of one year previously. This involved refinancing the banking system via a €1 trillion facility towards yearend 2011, at the extremely low rate of 1%.

1.3. Implementing completely new policies: the central banks entering new territory

Given the severity of the crisis, central banks in the developed world adopted unconventional monetary policy measures aimed at countering risks to economic and financial stability. These took the form of credit policy changes, bailouts of non-bank financial institutions and quantitative easing.

Policy of quantitative easing

Quantitative easing's main principle is large-scale asset purchases. Realizing that by itself, a zero interest rate policy is not enough to stave off a possible depression - and in a bid to stabilize monetary policy by keeping short-term rates near zero until mid-2015 - the Fed used the first wave of quantitative easing (quantitative easing I or QEI) to lend more money to the banks. At first, these loans were accompanied by usual secure collateral such as government bonds. After a while, however, the Fed began accepting other, **but always investment-grade**, financial assets.[17] The other central banks broadly followed the same approach.[18] On January 22, 2013, for instance, the Bank of Japan - under pressure from the new government - decided to change its monetary policy and raise the inflation target from 1% to 2%, even as its anti-deflationary efforts caused it to embark upon a massive quantitative easing programme (involving an almost unlimited purchase of financial assets, which ultimately reached nearly $1 trillion).[19]

resort; and the 1916 Clayton Act antitrust law, limiting the number of directorships that any single individual could have.

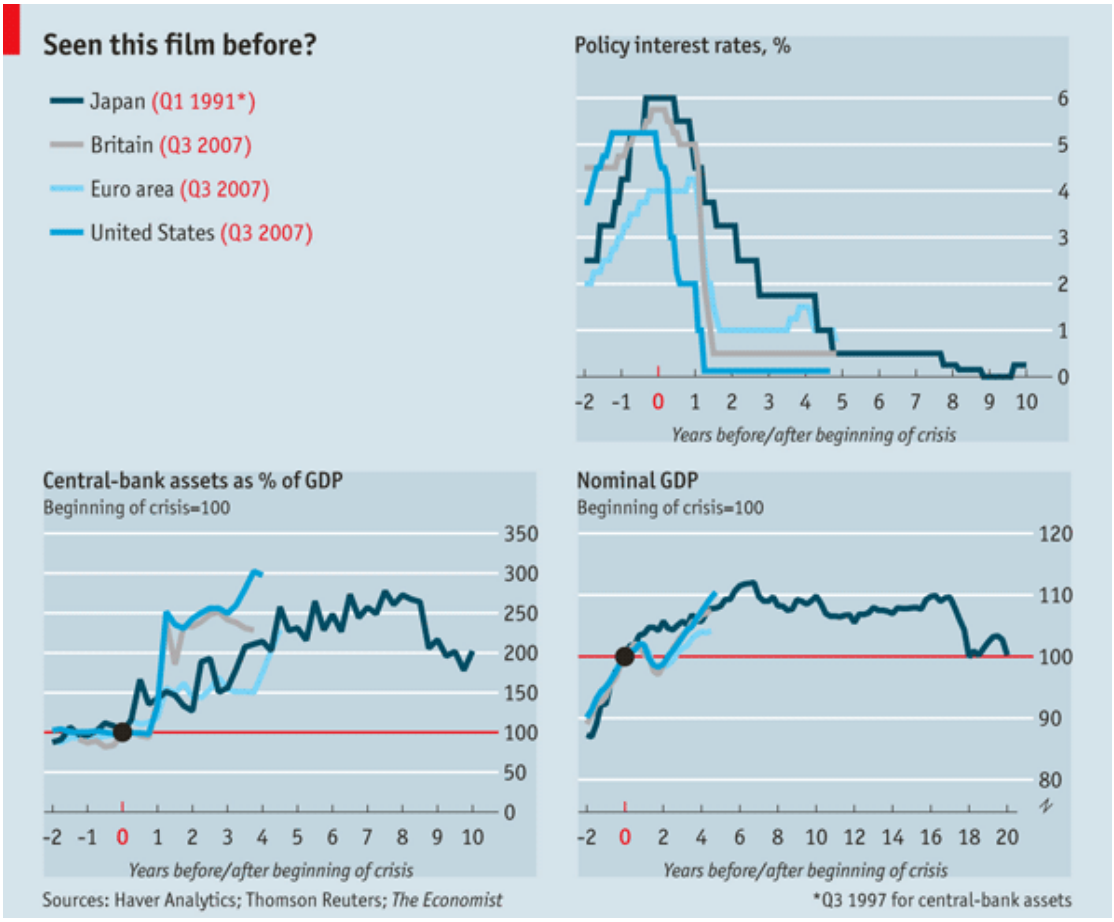
[16] The falling value of the CDOs in which two BNP money market funds had invested led to the extraordinary step of the bank refusing to redeem these normally highly liquid and safe vehicles.

[17] From November 25, 2008 onwards, the Fed bought debts issued by Fannie Mae and Freddie Mac ($175 billion), as well as Fannie Mae and Freddy Mac-guaranteed mortgage-backed securities for $1.25 trillion. A second wave (QEII) followed on November 3, 2010, involving the purchase of federal bonds with a maturity of five to six years ($600 billion). September 21, 2011 saw the so-called "Operation Twist", a more neutral, third wave (QEIII) measure based on the purchase of long-term bonds and sale of short-term bills ($400 +$267 billion) in the third wave September 12, 2012 saw a more flexible program involving MBS purchases guaranteed by Fannie Mae and Freddy Mac for up to $40 billion a month – along with a monthly purchase of $45 billion of Treasury bonds that had no time limits.

[18] First and foremost the ECB on September 6, 2012, with its launch of certain outright monetary transactions. This was a shift in ECB policy but – unlike the Bank of England and the Fed – maturities were limited to less than three years. The ECB's decision to buy "unlimited amounts of short-term government debt is likely to prompt a positive market reaction; in theory buying short-term maturities is less risky than long term."

[19] Short-term interest rates have been around 0% in Japan since 1995 without any significant effect on what has become a long-term deflationary process. Between 2000 and 2011, the country only witnessed three years in which there was some inflation (2006-2008), versus eight years of declining CPI.

Figure 2. Macroeconomic situation in different countris in crisis



The ECB's much bolder strategy

"A practice without doctrine is like strolling in a minefield after dark."

Whereas the Fed and other big players only bought investment grade bonds, the ECB entered an entirely new territory in May 2010 when it decided both to accept as collateral bonds rated below BBB- (especially issued by Greece), [1] and to buy these securities directly on the secondary market.[2] This strategy was supposed to lower long-term interest rates but ultimately failed.[3] All in all, the ECB[4] bought €214 billion in bonds or the equivalent of 2.5% of Eurozone GDP. The equivalent numbers were 8% for the Fed and 20% for the Bank of England – although the quality of the debt in question was fundamentally different.[5] Central banks purchasing US and UK bonds were acquiring the assets of countries that each have a single budget policy and a single monetary policy. The same does not apply in the Eurozone, explaining why the ECB established a ceiling mechanism to limit public debt. Contrary to the United States and the United Kingdom, the Eurozone is fragmented. Only the four Eurozone countries with an AAA rating – Germany, Luxemburg and possibly Finland and the Netherlands – can be considered risk-free. All the other bond issuers are at risk, as witnessed in their credit default

[1] On March 25, 2010, M. Trichet announced that the ECB would accept Greek bonds with a BBB- rating. Note that previously, the minimum rating had been A-. On May 3, 2010, the ECB declared that it would accept Greek bonds, irrespective of the rating.

[2] ECB statutes allow it to buy sovereign bonds on the secondary market. A European Council rule dated 1993 specifies, however, that this is no more than a tool meant to ensure the transmission of monetary policy.

[3] The implied rate on 10 year Greek bonds rose well above 20% after the purchase. They hit 37% by yearend 2011. Compare this with 8% in May 2010 .

[4] The European Central Bank's May 14, 2010 decision established a securities markets program (ECB/201/5). Article 1 of the ECB's Governing Council states that, "Under the terms of this Decision, Eurosystem central banks may purchase the following: (a) on the secondary market, eligible marketable debt instruments issued by the central governments or public entities of the Member State whose currency is the euro, and (b) on the primary and secondary markets, eligible marketable debt instruments issued by private entities incorporated in the euro area."

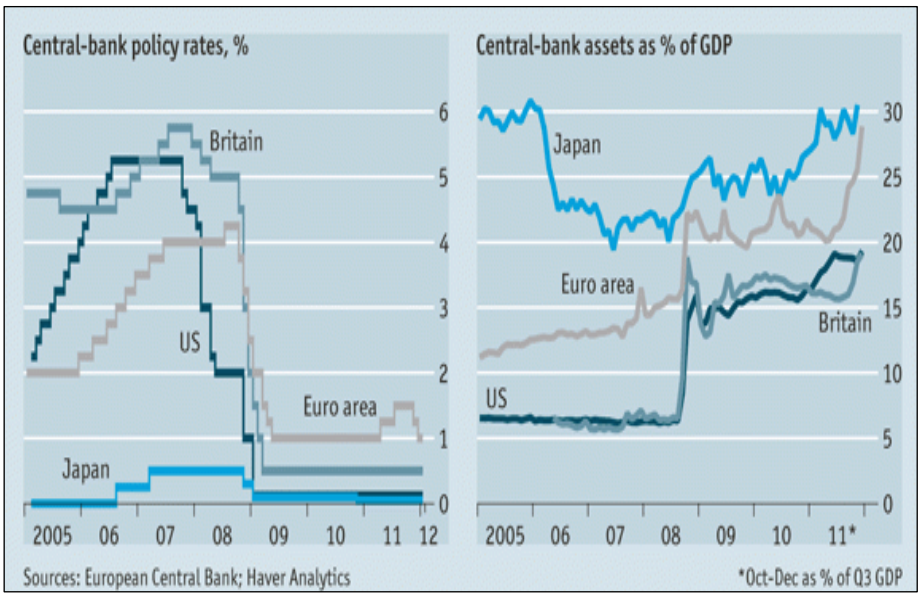
[5] The Bank of Greece owes the ECB around €130 billion under Target 2. In total, the Greek government owes Eurozone governments and institutions €300 billion. The structure of the public debt's ownership is now diametrically opposed to what it had been in 2009 (€298 billion solely held by private investors). By November 2012, the outstanding debt of €287 billion was largely held by public sector interests.

swap rates. Investing in non-investment-grade bonds, the ECB simply bought time, allowing the private banks to exit the Greek mess and virtuous governments (including France) to enjoy low interest rates – a solution that did little to address the issu of Greek insolvency. In added, given the risk of a Greek government default, it is possible that the ECB, with direct holdings of about $45 billion along with another $100 billion accepted as collateral, will lose much more than the €4.9 billion that the France's record rogue trader Jerome Kerviel ever did. The ECB's Council of Governors was totally inexperienced in real markets or bond trading. By 2013, the ECB's funds had dropped to €15 billion, with the whole of the Eurosystem holding no more than €86 billion (January 22, 2013 ECB press release; January 18, 2013consolidated Eurosystem financial statement).

Central bank acting on its currency: the example of the Swiss National Bank

The strength of the Swiss franc took central bank innovation one step further. The Swiss National Bank decided in September 2011 to buy unlimited quantities of euros (funded by printing additional quantities of Swiss francs). This was a success, with the Bank generating profits of €6 billion in 2012, 80% from its euro purchases.

Figure 3. Non-standard bearers



Conclusion

The paper's first section has given two reasons why central banks also bear responsibility for the financial crisis: 1) They failed to follow the Taylor rule in the 2000s, and 2) They forgot to focus on financial stability (and even worse, ignored the subprime and general property price bubble). Alongside of this, the financial system has also been the victim of a credibility paradox: actors' overconfidence in the stability of money caused them to under-estimate the real of risk-taking. Having said that, the central bank must all take responsibility at this level, given how entwined monetary and financial stability are with one another. Hence the need to also question the validity of the Tinbergen rule,[1] especially as an instrument dedicated to short-term interest rate. The authors' view is that central banks became too focused on consumer price stability as their overriding objective, and on short-term interest rates as their prime tool.[2] As exemplified in the UK by the collapse of Northern Rock – and given the way the country had separated its banking supervision functions among three different entities (the Bank of England, Treasury, and FSA), it seems reasonable to conclude that there is a good case for giving central banks a central role in financial stability.

[1] Tinbergen categorized economic quantities into targets - macroeconomic variables that the central banker wishes to influence - or instruments, which are the variables that the central banker can directly control. According to the Tinbergen rule, achieving several targets simultaneously requires the central banker to control an equal number of instruments.

[2] The job was facilitated by the astonishing number of citizens who admire central bankers unreservedly because of their supposed flair and great intelligence.

2. A New Theory of Modern Central Banking

"Rules always come after the fact. They never precede it."

2.1. A New Doctrine for Central Banking

"Preventing is better than curing."

2.1.1. A fight against all forms of inflation

Causes and measures of inflation

Contrary to the pre-crisis doctrine[3], it became clear that inflation[4] is not always a monetary phenomenon and that the recurrence of bubbles disproves the idea that financial markets are efficient. Monetary policy is not the only explanation for the low inflation of the 1990s and 2000s. Inflation was very low during this latter decade because of the glut of products, goods, and services on sale; the large supply of people seeking work; the trend since the 1980s towards greater market liberalization; the ongoing fluctuation in trade and financial flows; globalization in general; and the shifting balance of power (see Porter) between sellers and buyers. The question then becomes how to measure consumer inflation, a concept that is much broader than CPI alone. Inflation supersedes consumer goods (which are already difficult to measure) and might therefore be construed as phenomenon that destroys economic agents' wealth. A further complication is the way in which individual prices adjust to the presence of new products – not to measure the difficulties in measuring price-driven innovation and substitution[5].

Identifying and fighting asset price bubbles

An asset bubble is "the part of an asset price movement that cannot be explained by fundamentals."[6] The question then becomes whether it is possible to detect a bubble before it bursts; whether the bubble should be pricked before it bursts by itself and whether monetary policy is the right means of bursting a bubble.[7] Similarly, the usefulness of *leaning against the wind* policies also needs to be explored. It is clear that not all bubbles are necessarily dangerous and that a boom in asset prices must be followed by a crash.[8] A distinction should be made between bank-centered bubbles, which are speculative excesses caused by crazy bank lending (the subprime bubble), versus other kinds of bubbles, ones where banks play a minor role (stock market bubbles) and which involve stock valuation errors caused by the advent of a new business model.[9] The latter are not very dangerous (see the crash of 1987) – although it is true that the central bank has no specific advantage in such situations. Indeed, it is up to central bankers to identify which bubbles are dangerous, involving, for instance, excess debt or leverage.[10] Typically these are comprised of real estate and property bubbles, which are the most frequent cause of bubbles[11] due to their rent-to-price ratios and given households' debt levels.[12]

2.1.2. Lender but not investor of the last resort: updating the Bagehot rule

"The essence of central banking lies in its power to create liquidity, by manipulating its own balance sheet. The question is often asked whether a central bank that sets interest rates should also manage financial stability."

CAE Goodhart, *The Changing Role of Central Banks*, p. 9

Lender of last resort on the basis of solid guarantees

In turbulent times, central banks should adhere to an updated Bagehot rule, lending to banks and non-banking institution but not necessarily at a penalty rate – as long as the old rule of secure collateralization is being respected. The United States and the United Kingdom, for instance, have been deeply affected by a problem of liquidity but do not face any solvency issues.[13] The situation in Greece is

[3] Mainly based on Friedman's famous assumption that "inflation is always and everywhere a monetary phenomenon", in Inflation, causes and consequences, 1963.
[4] Defined as a general rise in the price of goods and services.
[5] Along these lines, note the significant variation between current data sets and the findings of an IT system called John William's Shadow Government Statistics that reconstructed CPI data for the United States using methodology first developed in 1980.
[6] P. Garber, "Famous First Bubbles," The Journal of Economic Perspectives 4, no. 2 (Spring 1990).
[7] G. D. Rudebusch, "Monetary Policy and Asset Price Bubbles," FRBSF Economic Letter, 2005-18 (August 2005): 5.
[8] e.g., the developed world experienced 24 bouts of asset inflation between 1960 and 1995, yet these "bubbles" only burst on three occasions See Bordo and Jeanne Boom, "Busts in Asset Prices, Economic Instability and Monetary Policy," CEPR Discussion Papers, 3398 (2002).
[9] Blinder (2008).
[10] Where credit funds the bubble and price changes are the main factor motivating highly geared buyers.
[11] See Reinhart and Rogoff, The Aftermath of Financial Crises (2009).
[12] In the case of a banking bubble, the central bank can raise their interest rates. However, this will not be effective, because of the probability of gain is always much more important than the capacity of the central bank to raise the short-term rate: who cares to borrow at 7% instead of 5% if the expected capital gain is to be +15% a year...
[13] This is especially true in the United States, which has a mandatory contribution level of only 27% versus 37% in the EU and 44% in France. It would be very easy for the US to cuts its budget deficit by taxing the country's wealthier households.

completely different, however, given the problem at both a budgetary and national solvency level.[14]

Never become the investor of the last resort for non-investment-grade assets

During the 2008 crisis, the Fed and a number of other central banks strayed from Bagehot's doctrine by lending on a huge scale not only to the market but also to specific troubled institutions,[15] sometimes against questionable collateral.[16] This generally turned governments into investors of the last resort alongside central banks.[17] Having said that (and unlike the ECB's more than €100 billion in loans to Greek banks), most central banks would refuse to become investor of the last resort if the collateral on offer involved non-investment-grade junk bonds. In short, the central bank's role during times of turbulence might be to serve as investor of the last resort alongside its customary mission of coordinating services amongst the various private parties involved in a bail-out (as happened with LTCM in 1998). Otherwise, it might be to help the government – as the Fed did with AIG in 2008, when it judged that the company's financial and business assets were adequate to secure an $85 billion credit line, thereby averting imminent failure.

Currency interventions must be the exception, not the rule

If the "Japanese monetary policy after 1985 had focused on stabilization aggregate demand and inflation, rather than being distracted by the exchange rate or asset prices, the results would have been much better."[18] Of course monetary policy per se - and central bank policy in general - has always had an impact on currency, explaining commentators' ritual talk about "wars" where each country tries to devalue its national currency. In reality, central banks rarely target currency levels,[19] which constitute less a key mission for them than one indicator among many others. For instance, the ECB has only intervened on one occasion (in Autumn 2000) to buy the euro and sell another currency (the Swiss franc). "Our strategy is to have a strong, stable and reliable euro." The only exception to this rule was the Swiss National Bank's successful decision in September 2011 to buy euros to stop the Swiss franc rising above 1.20.

2.1.3. Broadening central banks' mission

Much as monetary policy is clearly a pre-condition for financial stability, macro-prudential regulation can be used to bolster monetary policy.[20] Prudential economic regulation is paradoxical, insofar as the better a regulator performs, the lower the demand for its services. Yet however well-informed a central bank may be, it does not necessarily follow that it has to supervise and regulate the whole of the financial sector. Instead, it should suffice to have good communication with the regulators.[21] In part, this is because the concept of financial stability is even harder to master than inflation, as seen above. All of which explains why central bankers' missions is already in the process of being expanded. Since the 2008 financial crisis, central banks have been assuming greater responsibility for bank supervision via the Financial Stability Board system. The Dodds-Frank Act reforming Wall Street and the Consumer Protection Act of 2010 have caused major changes in the missions and responsibilities of the Fed especially by making financial stability an explicit goal. For the tools, this bill fixes some new limits[22].

The ideal frontier between macro- and micro-prudential supervision

Arguments about the micro-regulation role that central banks should play are well known and generally revolve around goals such as competency, harmonization, adaptation, economies of scale, allocations, having a unified vision and

[14] Theoretically, the primary surplus (i.e. the balance before interest on the debt) must exceed the GDP debt rate * spread between the interest rate and the rate of GDP growth. In the current situation and even with a long term interest rate of about 4%, Greece needs a primary surplus of 8%, Portugal, 4%, Spain and Italy? (4%). Yet the Italian state is the only one in this position (explaining why rates on long-term Italian bonds are lower than the other countries). Regarding national solvency, the trade surplus (excluding interest on external debt) must exceed the external debt rate *the spread between the interest rate and the rate of growth. It remains that all of the countries involved experienced an external deficit. Greece's external insolvency is particular hihg. Italy, on the other hand, is close to being balanced (given its external debt of only 20% GDP). That is why Greece is insolvent - and Portugal and Spain in great trouble - but Italy and Ireland are keeping their heads above water.

[15] AIG, Fannie Mae, Freddy Mac, etc.

[16] See ECB lending to the Greek banks against below investment grade Greek Government Bonds rated, in contradiction with standard collateralization policy.

[17] See the ECB's $45 billion purchase of Greek bonds as well as the Fed and BoE's purchase of huge quantities of government bonds on the secondary market.

[18] Japanese Monetary Policy: A case of self-Induced paralysis, December 1999, page 3.

[19] With the recent exception of the Swiss franc and the decision by the Swiss National Bank to buy any amount of euros to stop the franc rising above 1.20 against the euro.

[20] As Bernanke explained in 2007, "The Fed's ability to deal with diverse and hard-to-predict threats to financial stability depends critically on the information, expertise and powers that it holds by virtue of being both a bank supervisor and a central bank".

[21] Note Northern Rock's problems in the UK in 2007, caused in part by poor communications between the FSA and the BoE, which takes responsibility for supervision and emergency lending facilities. 2007-2009 also saw the US having to develop mechanisms (like the Treasury Auction facility or the Primary Dealer Credit facility) to gain experience in financial system management.

[22] Such as the ability to lend and provide liquidity during a crisis.

transparency.[23] The same applies to the opposing arguments: excessive concentration of powers, bureaucracy, lack of competition, conflict of interest or reputational risk.[24] The solution might be a better relationship between macro-regulators and micro-supervisors.[25] In the banking system is considered a public good for macro-regulatory reasons, it makes sense for central banks to also be charge of supervising the whole of the banking system – or, at the very least, the biggest and most dangerous section, to wit, the systematically important financial institutions (SIFIs) that are too big to fail and must therefore receive specific supervision[26]. Above and beyond improving the regulation of SIFIs,[27] there is also a need to address systemic problems affecting smaller institutions (i.e. the 16 September 2008 run on money market mutual funds). Moreover, if interest rates stay low for too long a period of time, an asset price bubble will arise and the central bank might be expected to take on the responsibility of pricking this. In any event, the already strong relationship between macro and micro-supervisory authorities needs to be further improved.[28] Of course, asides from the SIFIs, macro-prudential policies should not affect individual financial institutions. Indeed, it seems appropriate to make an exception for these institutions, so that corrective action can be taken promptly if needs be. Financial stability is a systemic phenomenon and must therefore be subject to permanent not episodic control.

[23] "The regulator in charge of systemic stabilization – which we assume, for the reasons given, to be the central bank – should also be a direct supervisor of the main systemic financial intermediaries. It should also have unquestioned supervisory access to such other banks and intermediaries which it considers may cause, or be involved in, systemic problems. But it need not, and probably should not, be the sole supervisor of even the most important and largest banks." CAE Goodhart, The changing role of central banks, page 13. Micro-prudential supervision involves a different kind of expertise, lodged in France – where, with the exception of Dexia, the situation was less negative - in a specifically dedicated institution. In Ireland, on the other hand, this organisation was extremely costly.

[24] J. R. Barth, D. E. Nolle, T. Phumiwasana, G. Yago, A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance, 77th Annual Conference of the Western Economic Association International, Seattle, June 29-July 3, 2002

[25] In the United Kingdom, for instance. The pre-crisis relationship between Bank of England, the FSA and the Treasury had been poor, creating the conditions for the first bankruptcy of a bank since 1866.

[26] The Dodd Frank Act in the US, the Banking Act in the UK and the European Union Recovery Directive decided to improve the supervision of the about 28 SIFIs.

[27] Systematically Important Financial Institutions have been defined by the Financial Stability Board by 5 criteria: global activities, size, interconnections, substitutability and complexity.

[28] As an example, the UK Parliament took a radical decision in deciding that from April 2013 onwards, the BoE will resume the supervision and regulation of individual banks - a function it had lost in 1997 to the FSA.

2.2. Central banks' new aims and toolboxes in the 21st Century

"A central bank is a bank, not a study group."

Lord Cobbold, former Governor of the Bank of England

2.2.1. Objectives and indicators

Consumer inflation

The new inflation doctrine requires a new objective such as targeting a 2% inflation rate instead of zero, and the commitment to pay specific attention to certain types of bubbles. The concept of inflation must be reviewed and not only with regards to CPI (c.f. J. Williams work on Shadow Government Statistics).[29] The question then becomes whether the level of nominal GDP constitutes a better target than inflation alone – in which case, monetary policy must focus on growth in the monetary base.

Tackling dangerous asset bubbles and assuming financial stability

As defined above, an asset price bubble can be defined as unsustainable asset price changes associated with persistent credit growth and rising leverage.[30] The main macroeconomic indicators could include: increased credit, the size of banks' balance sheets (especially compared to GDP)[31] and financial institutions' average size. "It has been shown that an indicator defined to provide a warning signal when both the credit to income ratio and real aggregate asset prices simultaneously deviate by 4 percentage points and 40% respectively, from their trends, would have predicted 55% of financial crises three years in advance and the likelihood that this indicator triggered a false alarm has been at least historically very small (around 3%)."[32] Otherwise, "considering deviations of the credit to income ratio beyond a threshold of 4 percentage points alone as warning signal, would have predicted even 79% of financial

[29] Not to mention radical inflation control measures such as in Argentina, where Ms. Kirchner's government decided to grossly underestimate CPI levels of around 25% as closer to 8%, so as to save a few billion dollars in interest charges on domestic governmental inflation-linked bonds. When the director of the country's national statistics service protested, he was simply fired…

[30] The three conditions set by Rudebusch in 2005 in terms of when asset prices can affect monetary policy are: evidence of a bubble; whether bursting it will have significant macroeconomic consequences; and the certainty and low cost of rising interest rates.

[31] See Iceland, Ireland and UK in 2008 before the crisis, as well as Cyprus in 2013. In Mr. Volcker's opinion, the solution is to keep banks small.

[32] Trichet, Asset Price Bubbles and Monetary Policy, Speech at the Mas Lecture, Monetary Authority of Singapore, 8 June 2005,quoting C. BORIO and LOWE (2002)

crises, although in this case the indicator would have provided a false warning signal in 18% times."[33]

Supporting financial stability and growth

Whereas one objective or indicator can be determined for inflation (at least CPI), the concept of financial stability is not as straightforward.[34] "The financial cycle is best apprehended as the joint behavior of credit and property prices. It has a much longer (and much greater) cycle than traditional business cycles. It is also closely associated with systemic banking crises, which tend to occur close to its peak. Financial cycles make it possible to identify permits the risk of future financial crises in real time and long in advance. They are deeply rooted in existing financial, monetary and real-economy policy regime."[35]

2.2.2. New powers and strategies for central banks

The question then becomes how monetary policy and macro-prudential policy might be combined as harmoniously as possible. The two interact frequently, insofar as monetary policy influences both asset prices and quality.[36] Hence the idea that a new macro-prudential approach might affect banks' attitudes towards lending.

- ***Monetary policy***

The starting point here would be an updated Taylor Rule based on strict loan-to-value ratios because "We find robust evidence that lower overnight rates soften bank credit standards, both for the average and also for the riskier loans."[37]

- ***Macro-prudential supervision***

The "leaning against the wind" strategy consists of cautiously raising interest rates beyond the level needed to maintain price stability over the short and medium term. According to Rudebusch, the fundamental difference between a standard and a bubble policy is that the former takes the bubble component essentially as given or exogenous, while the latter takes into account how the policy instrument can influence the bubble.[38] The decision tree derived from this raises the question of whether policy makers are in a position identify a bubble. "The policy rate is a poor tool to deal with excess leverage, excessive risk taking, or apparent deviations of asset prices from fundamentals. Even if a higher policy rate reduces some excessively high asset price, it is likely to do so at the cost of a larger output gap."[39] A more traditional regulatory and prudential framework is needed to develop the macroeconomic dimension. Central banks have at their disposal a large array of tools they can use on SIFIs. They can require dynamic charging for risks, pro-cyclical capital, reserves, refinancing ratios, liquidity ratio loan-to-book ratio or living wills. The focus here is on addressing the financial system's pro-cyclical susceptibility. Reserves have to be built up in the good times before financial vulnerabilities grow. These will involve quantities such as capital or liquidity ratios, charges for risks, collateral and margining practices. Ultimately, banks need to develop closer relationship with the ir supervisors (Bank of England, Northern Rock)

- **Communications policy**

"The basic idea is that if communications steer expectations successfully, asset prices should react and policy decisions should become more predictable. Both appear to have happened."

Normally, when central banks make themselves more predictable to the markets, what they are doing is making market reaction more predictable to monetary policy to itself. After all, monetary policy is the art of managing expectations. According to Blinder et al, there are two types of communication: the creation of news (i.e. shifts in short-term interest rates); and reductions in noise (the way central banks talk increases the predictability of their actions by lowering market uncertainty).[40] In times of crisis, the most important thing is the credibility of the central bank[41].

2.3. Governance in modern central banks

It is up to politicians to establish central banking's institutional design. In a state of law, it is perfectly normal for central banks to be defined by the legislator, and for top officials to be nominated by elected officials based on their competency. The central bank should be created by lawmakers and both accountable (in terms of making disclosures) and answerable to them. It must also be independent

[33] Ibid.
[34] Financial stability can also be defined as the absence of instability, exactly as health is the absence of disease. Note that biological metaphors are anything but absurd - the social world is much more of a living entity than a mechanical one.
[35] C. Borio, The Financial cycle and macroeconomics: What have we learnt?, BIS working papers, December 2012, page 23.
[36] See A. Maddaloni, J. L. Peydro, and S. Scopel , Does Monetary Policy Affect Bank Credit Standards? Evidence from the Euro Area Bank Lending Survey, ECB Working Paper, 2009.
[37] Ibid.
[38] According to the definitions found in Rudebusch, "Monetary Policy and Asset Price Bubbles."
[39] Blanchard et al., "Rethinking Macroeconomic Policy," p. 11.
[40] AS Blinder, M. Ehrmann, M. Fritzscher, J De Haan, D-J. Jansen, Central bank communication and monetary policy: a survey of theory and evidence, NBER Working paper, April 2008, page 5.
[41] With Draghi July 26, 2012's declaration, the power of words became a reality for a central bank

enough, however to resist government's eternal request that it fund excess public expenses.[42] The core philosophy for a sound governance of central must be based on the following triptych: independence, accountability and competency

2.3.1. Central bank independence

Some authors make a subtle distinction between "autonomy" and "independence".[43] From a theoretical perspective (and as has been widely documented in literature and history), independence is a precondition for a successful mission. It is vital because a central bank must be insulated from short-term political pressure in order to pursue its prime mission of ensuring price stability. Greater autonomy gives more power to prick bubbles. Empirical studies have corroborated this vision, with Arnone et al having revealed, for instance, a clear correlation between a country's level independence and its wealth[44]. Independence can still be questioned in countries lacking a real state of law[45] or full cultural independence (as is the case in Japan). A distinction can be made between political and economic independence, with the suggestion that political autonomy is real if (1) the governors and board are appointed for 5 years or more, (2) there is no requirement that government representatives be board members, (3) no government approval is required for the formulation of monetary policy, (4) the central bank is legally obliged to pursue monetary stability as one of its prime objectives, and (5) there are legal provisions strengthening the central bank's position in the event of a conflict with the government. A further suggestion is that economic autonomy be defined by (1) the impossibility for the government (in times of peace at least) to demand credit directly from the central bank, (2) when direct credit facilities are available they be extended to the government at market interest rates, (3) the central bank does not participate in primary public debt markets, and (4) the central bank take responsibility for setting policy rates (5).

2.3.2. Accountability

Accountability means much more than merely respecting procedures (box ticking). It implies transparency and explanation, as well as a willingness to disclose strategies and cooperate with authorities. In a developed country with a democratic regime, a central bank holding such power (and invested by the legislator with new missions) must be subject to review and held accountable by elected officials. This can also be done indirectly, based on full disclosure of the bank's terms and counterparties in their different forms; directly, through communications with citizens and increased transparency; and/or formally, through official hearings with elected bodies.[46] All in all, there has been tremendous progress towards greater accountability,[47] in line with guidelines once developed by Sir Montagu Norman.[48]

Accountability is also a way to get central banking to perform better, for example by publishing the minutes of each meeting promptly. "Besides satisfying the principle of democratic accountability, a more open policymaking process is also likely to lead to better policy decisions, because engagement with an informed public provides central bankers with useful feedback in the form of outside views and analyses."[49] Theoretical literature has yet to draw clear conclusions regarding the optimal level of transparency.[50]

[42] In actual fact, transparency and independence are correlated since if a central bank is independent, it has a duty to explain its actions and underlying thinking.

[43] Arnone and Alii mention that, "Literature often use terms like 'autonomy' and 'independence' interchangeably. However, there is a difference between the two concepts as autonomy entails operational freedom, while independence indicates the lack of institutional constraints." M. Arnone, B.J Laurens, J-F Segalotto, M. Sommer"Central Bank autonomy: lessons from global trends", IMF Working paper, April 2007, page 5.

[44] M. Arnone, B.J Laurens, J-F Segalotto, M. Sommer "Central Bank autonomy: lessons from global trends", IMF Working paper, April 2007. How to measure independence? See Eiffinger and Gerrats 2006 How transparent are central banks? De jure? De facto? Regarding independence and financial stability, see Klomp and Haan 2009 Central bank independence and financial instability, Journal of Financial Stability 5 (4), 321-338

[45] See the Argentine government's decision - after dipping into private pension fund reserves for $30 billion - to turn to central bank reserves, as well as the governor's refusal to countenance this action.

[46] "As civil servants whose policy actions affect the lives of every citizen, central bankers have a basic responsibility to give the public full and compelling explanations of the rationales for those actions." B.Bernanke, Fedspeak, Meetings of the American Economic Association, Dan Diego, January 3, 2004.

[47] c.f Sir Montagu Norman, "I don't have reasons, I have instincts." Also, "We achieved absolutely nothing, except that we collected a lot of money from a lot of poor devils and gave it to the four winds." Lastly, "Never explain, never apologise."

[48] A step towards greater public transparency: "In February 1994, the Federal Open market Committee (FOMC) began announcing its federal funds rate target decisions, with 'bias' assessment publications commencing in May 1999. February 2005 saw it expedite the release of its minutes to make them available before the next FOMC meeting… After November 2007, the Fed increased the frequency of its public forecasts and expanded their contents and scope. c.f. AS Blinder, M. Ehrmann, M. Fritzscher, J De Haan, D-J. Jansen, Central bank communication and monetary policy: a survey of theory and evidence, NBER Working paper, April 2008, page 3.

[49] B.Bernanke, Fedspeak, at the Meetings of the American Economic Association, Dan Diego, January 3,2004.

[50] Carin van der Cruisjen and S Euffinger, The economic impact of central bank transparency, A survey, CEPR Discussion Paper, n° 6070, 2007. According to Blinder, Ehrmann, Fratzscher, de Haan, Jansne (2008) Central bank communication and monetary policy: a survey of the evidence Journal of Economic literature, American Economic Association, vol46, n°4, pp.910-945, there are no optimal level of transparency.

2.3.3. Composition of board of governors

Central bank board member's key qualities remain the same as before: honesty/integrity; collegiality (given the diversity of views and opinions likely to exist among members of large committees); and competency. The new missions will, however, have some major effects on the composition of the board. To achieve collegiality, board members should have had a wide variety of professional experiences. Hence concerns about the ECB's current board, with this uniformity[51] potentially key factor in one of the main errors that it has committed in recent years, namely the decision to buy Greek bonds on the secondary market from May 2010 onwards. Each of the ECB's 22 members (6 members of the directory and the 17 national central bank governors) seems honest[52] and serious but none has any real experience of the financial markets.[53]Yet it should be possible to get people with all three qualities. The question is members' level of competency not only in terms of the ECB's core business (anyone with some experience of a national central bank should know how to use conventional monetary policy) as well as their experience in making massive purchases in one of the world's deepest markets.

Conclusion: A New Framework for a Modern Central Banking Pyramid

A more German(e) mission… The paper concludes with some important conclusions regarding the doctrine, objectives, indicators, strategies and tools (with a clear doctrine corresponding to a clear box of tools) applicable to modern central banks in developed countries.

The foundations of the new central banking doctrine

Central banking is still considered as an art[54] (grounded in central bankers' experience and seriousness) than a science.[55] From an economic and management perspective, central banks are clearly being run better (largely because they have learned from past mistakes) and it reasonable to consider that central bank management might qualify as a new discipline taught at business schools. Similarly, there is no doubt that research has helped central bankers. Their doctrine has had to be adapted to the globalization of the world economy and the growing sophistication of the financial world. Henceforth, it will have to be based on two missions: price stability; and financial stability (the latter a revolution in central banking theory). Central banks must remain a lender but not an investor of the last resort - or at least, they should never invest in non-investment grade assets. It is true that in extreme cases like AIG, their expertise might help them to assume an investor of the last resort's role). In general, however, it is up to the state to fulfill this mission. Nor should central banks receive a hierarchical mandate, if only because they operate in a two-pillar rather than a pyramid framework. Macro-prudential supervision is acceptable – possibly involving SIFIs, due to the systemic risks they incur - but not micro-supervision, which in France is the job of an expert body such as ACP. Above all, central banks must stick to the Taylor rule. It must be clearly stated that they cannot buy non-premium government bonds (i.e., governments bonds where there is a reasonable risk of failure). There are clear flaws in the new strategy that the ECB pursued from May 2010 onwards - involving the purchase of €200 billion in government bonds issued by fragile Eurozone countries (above all, €45 billion of Greek securities). Of course, this is much more an issue of credibility than a financial one due to the fact that central banks can in fact operate perfectly well in a situation of negative equity.

Objectives and indicators

The two core missions (monetary and financial stability) are also means to detect and alleviate pressures on the global financial system. This too must also be upgraded. For instance, with regards to inflation, central banks must define a CPI target, which might be the same as the customarily tolerated core inflation of 2%. They must also add a new objective, namely the identification of asset price bubbles, often caused by excess credit and leverage that can be dangerous for financial stability. Employment (at around 6.5%) and credit levels should also become key indicators. It must be clear, on the other hand, that currency parities must not become an objective.[56] Lastly, with respect to the 2% inflation target, it is worth noting that for the FED, the core PCE (Personal Consumption Expenditures) remains more important than the CPI.[57]

[51] One anecdotal problem is the total absence of women on the ECB's board in 2013.
[52] Integrity is the first quality and the reason why the former President of the Swiss National Bank had to resign after news broke that his wife was possibly involved in insider trading.
[53] The fact that Draghi had been an employee of Goldman does not constitute proof given that what Goldman bought with Draghi's addresses and reputation was no more than a trophy asset. He never had any operational responsibilities, meaning that – fortunately enough - real business remained under practitioners' control. Of course, this era Goldman suffered a great deal of criticism given the possible conflict of interest.
[54] See quote from Montagu Norman.
[55] See Leeper (2010).
[56] Even in a historical situation such as the German unification, parities were not decided by the central bank, with Bundeskanzler Kohl being the one who decided to maintain the official (and totally unrealistic) pari passu rate - a nonsense in economic terms given that a black market rate of 1 Deutsche mark for 5O Ostmarks. This was a quintessentially political decision aimed at averting a mass exit from East to West Germany.
[57] See differences

Consequences for governance

The foundations of the new doctrine, based on independence, responsibility, accountability[58] and transparency, is in need of upgrading. Independence must be safeguarded and responsibility improved through greater transparency and a strategic use of central bank communications. Collegiality and competencies are two additional criteria of good governance, as is an adapted composition of central bank board (with members characterized by their competency, integrity and ability to work with one another. The new doctrine should promote a more varied membership, not only in terms of gender but to avoid the "consanguinity (propinquity) syndrome" where the only individuals selected are former civil servants with no real experience, for instance, of trading or financial analysis.

Bernanke was right to say that, "Specifying a complete and explicit policy rule, from which the central bank would never deviate under any circumstances, is impractical. The problem is that the number of contingencies to which policy might respond is effectively infinite (and, indeed, many are unforeseeable)."[59] Central banks must not be constrained by overly stringent rules if they are to maintain the capacity for flexibility that they successfully manifested in 2007-8 when they put out of the fire ranging through the world's financial systems. Safeguarding and reinforcing central banks' main asset - their credibility – is the key challenge of our times.

[58] Accountability to elected entities is of course important for legal reasons, but also for practical ones: Rendre compte, c'est se rendre compte

[59] Bernanke, Fedspeak, Remarks at Meetings of the American Economic Association, San Diego 2004

A NEW PARADIGM OF MODERN CENTRAL BANKING

Aleksandra Szunke*

Abstract

The changes in the modern monetary policy, which took place at the beginning of the twenty-first century, in response to the global financial crisis led to the transformation of the place and the role of central banks. The strategic aim of the central monetary institutions has become preventing financial instability. So far, central banks have defined financial stability as a public good, which took care independently of other monetary purposes (Pyka, 2010). Unconventional monetary policy resulted in changes the global central banking. The aim of the study is to identify a new paradigm of the role and place of the central bank in the financial system and its new responsibilities, aimed at countering financial instability.

Keywords: Modern Monetary Policy, Central Bank, Financial Stability, Banking Sector Instability, Macro-Prudential Policy

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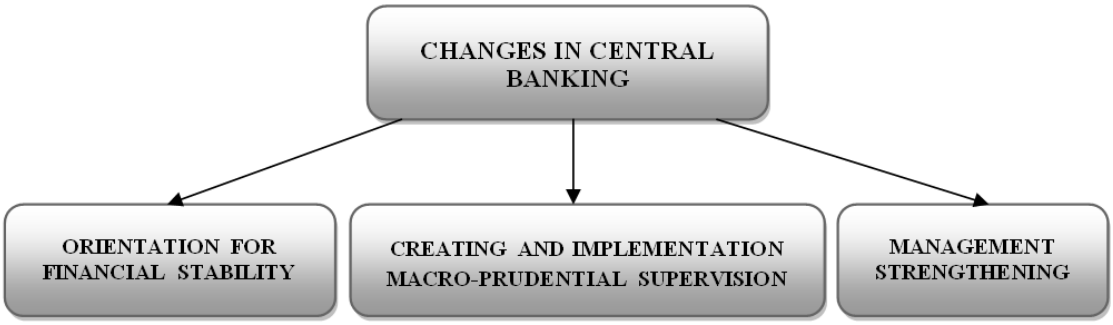
1. Transformation of modern central banking

The breakdown in the financial system implies the evolution of the functions and responsibilities of central banks regardless of the level of economic development the global economy (Goodhart, 1988; Bordo, 2007a; Bordo, 2007b). After a series of banking crises in the nineteenth century, it was decided that the main aim of central banking is to ensure the correct functioning of financial markets, particular during the instability (Bagehot, 1973). After the Great Depression in the 30s twentieth century indicated that the central banks had been responsible for the economic recession, so the monetary policy was provided to the government. The independence of central banks and implementation of monetary policy by them were restored in 1950 (Bordo, 2007a; Bordo, 2007b). After a period of hyperinflation in the 70s (*Great Inflation*) in industrialized countries, the primary goal of monetary policy has became the price stability and the independence of the central bank as the only institution which may achieve these objectives. The global financial crisis is the biggest economic downturn since the Great Depression. Central banks and national governments have played a key role in reducing the effects of global instability and prevention of financial and economic collapse. At the same time, the crisis has caused important implications for central banking. These changes can be seen in three main areas (Figure 1).

Figure 1. Changes in central banking after the global financial crisis



Source: Own work

Firstly, financial stability will play a more significant role in a monetary policy strategy, not only during instability, but also in the stable period. Central banks are in fact the first institution in the chain which identifies signals of system's collapse. Central banks are focused on the prevention of instability, because it threatens the monetary transmission mechanism and causes significant economic costs. However, modern central banks began to implement new functions. They do not limited only to the classic triad of functions: the function of the bank of banks, state bank and the issuing bank. Their strategic goal, except issuing of money and determining the state of base rates, has become achieving objectives beyond the traditional monetary policy strategy. The stability of the financial system was recognized as the main aim of central banking. Moreover, central banks are also obliged to publish periodic *Financial Stability Reports* - about current conditions of the financial system.

Function of central bank as a *Lender of Last Resort* (LoLR) has also gained new meaning. Originally it was intended to counteract the negative effects of instability and decline in economic activity by increasing the capacity of banks' credit activity. During the global collapse central banks are in fact obliged to immediately supply the liquidity to commercial banks, without any restrictions on the volume of provided capital. Furthermore, this capital was mainly medium or long-term (as opposed to the traditional short-term financing by central banks), and its cost was minimal. The lender of last resort plays a significant role in sustaining the existence of endangered institutions and controlling the situation on the interbank market. Central banks have also started to play a new role – *The Buyer of Last Resort* (BoLR). This was due to the special asset purchase programs, implemented under the policy of *Quantitative Easing*. Central banks have become the final purchasers of the toxic assets which worsened the structure of banks' balance sheets. At the same time, these purchases resulted in increasing banks' liquidity and allowing them more efficient capital investments. On the other hand, bad and overdue loans have caused for central banks freezing their capital, which will be returned in next years or will be completely impossible to get back. These actions weaken the national banking systems and decrease the possibility of further intervention by monetary institutions.

After the crisis was also stated the new regulations - the institutional framework of central banking. New functions in the context of macro-prudential supervision have been assigned to central banks. The regulations aimed mainly at identifying threats to the stability of the financial system. The European Union has established the *European Systemic Risk Board* (ESRB) as a new macro-prudential authority, which takes care of counteracting next breakdowns through early identification of systemic risk and identifying effective measures to minimize it. This authority cooperates with the European Central Bank. Despite both institutions are independent, their goals are clearly defined: ECB - price stability, the ESRB - reducing systemic risk. If central banks will play a greater role in financial stability policies they also need the right tools and skills for their successful use. At this level are not yet defined the specific macro-prudential instruments of individual national central banks. However, these must include instruments which ensure that the financial system will be more resistant in terms of structural and countercyclical deteriorations. Some of them should be like automatic stabilizers - immediately react to irregularities, and others, just to be used occasional, in temporary situations. Institutional changes may also strengthened the role of the central bank as the regulator and supervisor of the financial market. Since the beginning of the new century the institutional supervision was replaced by integrated supervision with the dominance of a single supervisor, separated out from the central bank. The crisis has revealed that integrated supervision is ineffective because a single institution, independent from the central bank, is not able to prevent instability. Especially that information about the functioning of the financial markets firstly reaches to the central bank. So that, it turned out that removing central banks from supervisory authority was improper solution. In current terms, there are tendency to return to the institutional or twin peaks supervision, which cooperates with the central banks, and where the greater specialization of the institutions may counteract destabilization in the future. Thus, the central banks' role as a part of safety net has become increasingly important. Greater cooperation between monetary institutions, national governments, deposit insurance institutions and supervisors ensures consistent market conditions monitoring and control of the main indicators that inform about the level of market risk. The roles of all safety net institutions are redefined and focus mainly on preventing instability and first achieving the strategic goal.

The third area of transformation in the modern central banking includes changes in the management system. Extended powers in managing financial stability include significant changes in the structure and functioning of the central bank. This requires greater interaction monetary institutions with national governments, while ensuring the autonomy of the central bank to achieve price stability. On the one hand, banks will continue the monetary policy, and on the other hand - more attention will be focused on cooperation with government institutions for the stability of the whole system. So that, the challenge is to develop appropriate management mechanisms at central banks and clearly define their strategies in achieving all the objectives.

The crisis also revealed weaknesses of paradigm of the monetary policy strategy, which dominated before the collapse. First, the definition or interpretation of the objective of price stability - by defining an acceptable level of inflation, so far was based solely on short-term horizon. Second, central banks did not take into account the permanent changes which have been taking place in the financial environment, and which threatened price stability. These weaknesses were not allowed to meet the challenges resulting from changes in the cycle of financial markets, which was a very serious threat to the economic stability and to maintain the general level of prices. Monetary policy based on short-term forecasts of inflation and ignoring threats from the financial markets have led to too expansionary policy. It has been observed since the second half of the 90s until the first signals of global instability in August 2007. In the advanced economies, monetary policy must be aimed at maintaining price stability in the medium term, as well as has to take into account monetary trends and long-term threats arising from the instability of financial markets.

2. Modern instruments of central banks

The main aim of the central banks are implementation of monetary policy and achieving goals included in the strategy. Depending on economic conditions, these objectives may focus on defining the terms of trade - as it was in period of dominance of gold, or in accordance with the modern trend - price stability (Goodhart, 1988). Along with changes in strategy, instruments have also been transformed. Economic changes in last decade imply the need to identify new tools that enable counteracting the negative effects of instability. In response to growing inflationary pressures as a result of the global economic slowdown, the basic interest rates of central banks have been reduced to historically low levels. The European Central Bank lowered the refinancing rate to 1% - to a level that has not been observed in the modern history of central banking in any of the Eurozone countries.

In July 2012, by the lack of meaningful economic recovery and the next round of economic stimulus programs implemented by the world's major central banks, ECB has decided to further lower its main interest - to the level of 0.75%. Bank of England and the People's Bank of China have also decided to further loosening the monetary policy. Moreover, ECB lowered the level of deposit rate to zero percent, which is the rate of interest on deposits of commercial banks at the central bank. Such decisions had not even been taken by the U.S. Federal Reserve, which politics was more aggressive in minimizing the effects of the crisis and the economic slowdown. Decision of the central bank of the euro area was aimed at encouraging banks to increase credit activity using funds previously held in accounts in ECB.

The global financial crisis also caused the qualitative changes in the instrumentation so far used by central banks. Many institutions have introduced unconventional tools to support the functioning of financial markets, improve liquidity in the banking sector and increasing economic activity. Extraordinary monetary policy instruments includes:

- unlimited capital support for banks, with maturities of up to one year;
- supply of liquidity in foreign currencies;
- expand the list of assets eligible as collateral;
- outright purchases of mortgage bonds in open market operations;
- interventions in the bond market in the asset purchase program.

Central banks, after the implementation of the unconventional instruments, face the problem of when and how often they should limit these operations and return to the traditional tools. Too long intervention of central banks to stimulate economic growth may in fact cause the negative effects for the market. Therefore, it is important appropriate implementation the *exit strategies*. On the other hand, too rapid changes in banks' positions may create new market stress, with the negative consequences for the ongoing economic recovery and medium-term outlook for level of prices. In Japan in the 90s twentieth century, the combination of zero interest rates and the asset purchase program in *Quantitative Easing* policy, which solved the liquidity problems of financial institutions, led to negative effects on the bank's function as a financial intermediary in the money market and the corporate bond market (Baba, Nishioka, Oda, Ueda, Ugai, 2005).

3. Interaction between monetary and fiscal policies

The changes that have occurred in central banking as a result of the global financial crisis are also seen in two other areas. Firstly, there have been changes in the relationship between monetary policy and fiscal policy. Moreover, changes in the balance sheet of the central banks were considered as one of the monetary policy instruments.

In view of the banking sector instability in the first decade of the twenty-first century and the recession many economies in the world there has been a significant increase in government spending. A part of these increases were due to implemented tools, defined by economists as the automatic stabilizers. It caused a sharp increase in budget deficits, resulting from the use of fiscal instruments, implemented to improve economic indicators. This led to the significant implications also for monetary policy. In general, government spending is financed by current taxes, while deficits - with future taxes or through printing money. In this sense, monetary and fiscal policy are interrelated through dependencies in

financing the state budget. Printing money is the easiest way to solve budget problems. However, in the last 60 years all over the world was recognized the independence of central banks, which means that the monetary authorities have the ability to make autonomous decisions about monetary policy and they are free from interference and pressure from government institutions. Regulations protecting central banks created protection against pressure from the government which seeks to maintain fiscal discipline. So it is reasonable to maintain appropriate boundaries between institutions responsible for the fiscal policy and issuing money.

Over the past 25 years, most of the world's central banks have adopted inflation targeting as the primary objective of central banking. Moreover, the size and the structure of the balance sheets of central banks was limited. These institutions might have only had certain types of assets, which was associated with a reduced ability to conduct credit activity and allocation of their assets. Along with implementation of extraordinary monetary policy instruments, which were aimed at increasing the liquidity of the banking sector and improving the quality of assets of banking institutions, there has been a rapid increase in the size of central banks balance sheet and the structure of their assets. There were created new assets, which were a result of the purchase programs. Central banks purchased credit receivables, classified as past due or uncollectible, from the commercial banks which had a negative impact to the quality of banks' balance sheets. Finally, the banking sector instability as well as persistent fiscal imbalances have led to the collapse of institutional structures and created barriers between monetary and fiscal policy. On the one hand governments tend central banks to cross the limits of their monetary activities, and on the other hand - central banks enter into new areas, previously seen as inappropriate from the point of view of central bank independence. However, disappearance the boundaries might result in the significant risk. It is a reason why previously rules were established which separate their mutual activity. Their failure may create significant costs for the global economy in the future.

Another important issue is transformation of the size and structure of the central banks' balance sheets. Asset structure, limited so far, has been extended of the new items. The U.S. Federal Reserve System in the balance sheet before the period of instability, had mostly short-term Treasury securities. By the asset purchase programs, long-term government securities and *Mortgage-Backed Securities* (MBS) have become an important position in the balance sheets. The increase in the size of totals assets and liabilities reached so high level that despite the exit strategy, it will be difficult to return central banks to the pre-crisis situation. Thus, regulations are needed to help banks and financial system to gradually restrict unconventional tools' activity. Lack of adequate regulations may cause further unlimited expansion of banks' balance sheets and finally decrease their role in financial system and effectiveness of their interventions.

Conclusions

Modern monetary policy should focus on maintaining price stability in the medium term and guarantee the independence of the central bank to ensure achieving these goals. These rules define a framework for monetary policy almost all developed economies. Their validity has been verified and confirmed by the experience of the recent crisis. However, situation in the financial markets in last decade has revealed shortcomings in the framework of the current monetary order. Nearsightedness of central banks led to excessive loosening of monetary policy (too expansionary monetary policy) in many developed economies, which is considered as one of the main causes of the global financial crisis. In the implementation of the exit strategies and the withdrawal of extraordinary instruments, should be taken into account the new determinants of central banking. Excessively expansionary policies may create the risk of new imbalances and severe financial disruptions. Appropriate relationship between fiscal and monetary policy ensures the independence of central bank, but also its trustworthiness. Monetary authorities should also not finance the budget deficit from their own capitals.

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