

Journal Global Policy and Governance

Special Edition on “European economic issues and Asian responses”

Introduction

B. A. O’Callaghan; S. Rey; J. Jaussaud 3

Papers

- | | | |
|--------------------------------------|--|----|
| J.Schaaper;
Ni Gao | How do Chinese Multinational Companies Coordinate
and exert Control over Foreign Subsidiaries ?
The case of Chinese Subsidiaries in France | 7 |
| U. Uprasen | The Role of Foreign Capital Inflows on Economic Growth
of the Southeast Asian Least Developed Countries | 27 |
| L. Morales;
B. A. O’Callaghan | Is China’s Financial Sector Reform the Answer to
Economic Globalisation? | 43 |
| S. Nivoix;
S. Rey | Toshiba’s market valuation in the midst of a long term
turmoil | 71 |
| C. Saka;
T. Oshika;
M. Jimichi | Does Tax Avoidance Diminish Firms’ Sustainability? | 95 |

Journal Global Policy and Governance
Editor-in-Chief: Giorgio Dominese

**Special Edition on “European economic issues
and Asian responses”**

Editors: Bernadette Andreosso-O’Callaghan* • Serge Rey
Jacques Jaussaud*****

Introduction

Since its “New Asia Strategy” formulated in 1994 (EC, 1994), the European Commission has been eager to resurrect and then to refine its economic relationship with Asia and in particular with East-Asia, by upgrading the relationship to a “comprehensive strategic partnership” with China for example, and by focusing overall on greater “connectivity” between the two regions (see for example EC, 2018). According to the 1994 seminal document, the restoration of a strong relationship between the two regions would have enabled the EU to maintain its “leading role in the world economy”, to “ensure that [the EU] interests [were] taken fully into account in this key region” and, through an active participation of EU firms in Asia, the relationship would have provided “qualified jobs for European workers” (EC, 1994: 3). In one of the most recent EU Commission official documents where the relationship is now referred to as being one of “connectivity” between the two regions, particularly in the aftermath of China’s Belt and Road Initiative (BRI), it is stated that an enhanced relationship between the two regions “contribute to economic growth and jobs, global competitiveness and trade” EC (2018: 1).

Reviving economic growth in the EU has clearly been a driving objective of EU-Asia relations, from the part of the EU institutions, but during most of the 26 years after the 1994 document, economic growth in the EU has been rather unimpressive, in comparative terms. A recent report for the EU Commission mentions a “fragile global recovery”, after the 2008 shock, as well as “steady moderate growth” (EC, 2020: 1) putting the growth rate for the euro-area at 1.2 percent for 2020 and 2021 per annum (which is the same as for 2019 and lower for the EU-27). Although growth at the global level is also rather modest (2.5 per cent forecast for the world economy as a whole for 2020 according to the recent 2020 World Bank forecasts),

Bernadette Andreosso-O’Callaghan (✉)*, Serge Rey**, Jacques Jaussaud***

* University of Limerick, Ireland

e-mail : Bernadette.Andreosso@ul.ie

** Professor, University of Pau, Cedex, France

e-mail: serge.rey@univ-pau.fr

***University of Pau, France

e-mail: jacques.jaussaud@univ-pau.fr

the East-Asia Pacific region stands out as the region with better growth prospects of all, and as the region with the fastest labor productivity growth. The Chinese economy is expected to slow down a bit and to grow by 5.9 per cent in 2020 (against 6.1 per cent in 2019), whereas growth forecasts for the mature economy of Japan would only reach 0.7 per cent. A number of adverse circumstances explain these unimpressive growth prospects, such as the remaining uncertainty surrounding the US trade policy, geopolitical tensions in the Middle-East, political and social unrest in some parts of the world in particular in South America, the long-term relationship between the EU-27 and the UK, and more recently, the outbreak of the *coronavirus* (World Bank, 2020). Except for Japan, where the population is now actually declining, diverging growth paths seem to have opposed Asia and the EU; this is despite increasing economic links forged between the EU and Asian countries since the 1990s, and this is also despite the advent of the single European currency.

Of specific note however are the many EU-Asia economic and business connections that have mushroomed in the last 25 years or so, making now Asia a significant economic partner of the EU; Asia a whole accounts for roughly 35 per cent of EU exports and for 45 per cent of its imports (EC, 2018). The papers -published by the Journal Global Policy and Governance in this *Special Edition*- provide some concrete examples of this increased Asia-EU economic/business interaction and/or of how growth revival in Asian countries, through adequate domestic policies, can eventually trickle down in EU countries in the context of highly globalized regions. These papers can therefore be appraised as providing a contribution in terms of Asia-EU economic relations, although the focus is, perhaps in contrast to EU policy thinking, on how Asian growth can be beneficial to the economies of the EU. In particular, with the advent of the 2008 global financial crisis, many Chinese companies have seized the opportunity to invest in the distressed and also in the more dynamic areas and regions of Europe. Job creation and economic growth, through spillover effects, are the direct beneficial effects of inward direct investment.

The first paper is entitled *How do Chinese Multinational Companies Coordinate and exert Control over Foreign Subsidiaries? The case of Chinese Subsidiaries in France*. France is nowadays an attractive country for Chinese investors. With their direct investments in France, Chinese companies pursue mainly market and asset seeking goals. However, Chinese firms might lack much needed international experience, which makes good performance of their subsidiaries in France difficult to achieve. This contribution investigates how Chinese companies implement control and coordination mechanisms to manage their subsidiaries in France. The authors held interviews with 17 managers in charge of Chinese subsidiaries in France. They find that Chinese companies use four main mechanisms to exert control over their subsidiaries in France: (i) control through the share of capital in a subsidiary, with a clear preference for wholly-owned subsidiaries or large majority shares in joint ventures; (ii) decentralised decision-making to compensate for the lack of international experience of Chinese managers; (iii) formalisation of the subsidiary's organisation through a mix of reporting, ERP and written documents; and (iv) control and coordination by

international human resources coming from the Chinese headquarters, including expatriates with rather observational roles as well as frequent short-term assignments.

The second paper of this number entitled *The Role of Foreign Capital Inflows on Economic Growth of the Southeast Asian Least Developed Countries* highlights the ambiguous effects of capital inflows on the economic growth of recipient economies, although these recipient economies do need inward capital for their economic development. The case of Southeast Asian least developed countries (namely Cambodia, Lao PDR and Myanmar) is investigated in this paper, where capital inflows include remittances, foreign direct investment as well as official development assistance. The data used in this work span over the period 1980 to 2017, and an autoregressive distributed lag (ARDL) model is used to analyze the impact of these capital flows on the economic growth of these countries. The results differ across countries and according to the type of financial flow. In the case of international remittances, the findings show that their short run effect on economic growth becomes insignificant in the long run in the case of Cambodia and of Lao PDR, whereas a short run positive impact is still perceptible in the long run in the case of Myanmar. Interestingly, foreign direct investment raises economic growth in all three countries in both the short and long runs. Finally, the short run contribution of official development assistance on the economic growth of Cambodia and Lao PDR still remains in the long run, this effect becomes insignificant for Myanmar. These results highlight on the main the positive impact of capital inflows in least developed countries, and therefore the positive nature of domestic policies on economic growth. Another paper dealing with adequate domestic policies (in the case of an Asian country) is the paper entitled *Is China's Financial Sector Reform the Answer to Economic Globalisation?* Given China's “*new normal economic model*” following the 2008 global financial and economic crisis, services and in particular financial services have become a key sector of Chinese economic policy. The ability of the country to keep growing is tightly connected with the development of its banking and financial system. The sector is indeed susceptible to contribute to the needed conditions that support fast economic growth and development not only in the Chinese economy but also worldwide. Chinese policy in the area is divided between leaving the “*The Big Four*” Chinese commercial banks under the control and surveillance of the central government, and promoting banking deregulation, liberalization and efficiency. The main results from this empirical study highlight that the “*Big Four*” do not seem to be impacted upon by either regional or global uncertainty, but that causal dynamics exist between Chinese top banks and regional market uncertainty, a phenomenon that needs to be carefully considered by policy makers.

The last two contributions in this Special Edition deal with the case of the Japanese economy. First, the paper entitled *Toshiba's market valuation in the midst of a long-term turmoil* underlines that since 2008, Toshiba has been experiencing a major fraud and financial scandal, which has impaired its stock price, governance and reputation. As this conglomerate is one of the largest and more ancient Japanese industrial groups, it is highly interesting to analyze the impact of this situation on the main financial indicators of the company in a long run perspective. This contribution shows that while

the risk level of the firm was increasing the returns and stock price were dropping. Such an evolution really endangered the group, as the stock market ratios show. In addition, the calculation of abnormal returns confirms that the news considered *a priori* as good (or bad) generated cumulative increases (or decreases) in the returns of the Toshiba stock.

Finally, the last paper entitled *Does Tax Avoidance Diminish Firms' Sustainability?* deals with an issue that has gathered substantial public attention among firms, policy makers and academics. It looks at the relationship between tax avoidance and firm sustainability and it is the first study to show the economic consequences (effects on sustainability) of tax avoidance in the long run. Starting with stakeholder theory which suggests that firms need to maintain good relationships with all firm stakeholders in order to be sustainable, the authors argue that tax avoidance may diminish the sustainability of firms in the long term, although it might make the firm profitable (judging by its higher net income after tax) in the short run. The main findings of this empirical research show that the effective tax rates (ETRs) of the firms are tied with their sustainability and that tax avoidance diminishes sustainability.

References

- EC (1994) *Towards a New Asia Strategy*, Communication from the Commission to the Council (COM/94/314 FINAL, Brussels).
- EC (2018) "Connecting Europe and Asia – Building blocs for an EU Strategy", Joint Communication to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank (JOIN 2018, Final, Brussels).
- EC (2020) *European Economic Forecast*, Institutional Paper 121, European Commission (Economic and Financial Affairs), February, Brussels.
- World Bank (2020) *Global Economic Challenges – Slow Growth, Policy Challenges*, World Bank Group, January, Washington.

How do Chinese Multinational Companies Coordinate and exert Control over Foreign Subsidiaries ?

The case of Chinese Subsidiaries in France

Johannes Schaaper* • Ni Gao**

Abstract France is nowadays an attractive country for Chinese investors. With their direct investments in France, Chinese companies pursue mainly market and asset seeking goals. However, Chinese might lack international experience, which makes performance of their subsidiaries in France difficult to achieve. Our research investigates how Chinese companies implement control and coordination mechanisms to manage their subsidiaries in France. We held interviews with 17 managers in charge of Chinese subsidiaries in France. We find that Chinese companies use four main mechanisms to exert control over their subsidiaries in France: (i) control through the share of capital in a subsidiary, with a clear preference for wholly owned subsidiaries or large majority shares in joint ventures; (ii) decentralised decision-making to compensate for the lack of international experience of Chinese managers; (iii) formalisation of the subsidiary's organisation through a mix of reporting, ERP and written documents; and (iv) control and coordination by international human resources coming from the Chinese headquarters, including expatriates with rather observational roles as well as frequent short-term assignments.

Keywords: China; Control; Expatriation; Foreign direct investment; Foreign subsidiary; Multinational companies.

JEL Classification: M16; M31

Introduction

Chinese direct investments in France are growing steadily for the last 10 years. In 2018, China was the second Asian country to invest in France, just behind Japan, with 65 investment projects creating 2234 jobs (Business France, 2018). Among these projects, the investments of the major Chinese groups BYD (automobile and equipment manufacturer), MINYOUN (hotel and real estate) and AVIC (Aviation

Johannes Schaaper (✉)*, Ni Gao**

* University of Bordeaux, IRGO

e-mail : jschaaper@u-bordeaux.fr

** KEDGE Business School

e-mail: ni.gao@kedgabs.com

Industry Corporation of China) are the most prominent examples, due to the volume of investment and the numerous jobs that resulted from these investments.

Chinese companies pursue two main goals with their FDI in France (Gao and Schaaper, 2018). The first motive is market seeking, while Chinese companies want to increase their sales in French and European Union markets. Some Chinese companies are looking at the francophone West African markets, with which France has historical connections. Also, some Chinese companies target to enter specific protected European markets where direct access for Chinese companies is complicated, like the telecommunication sector, through establishing a subsidiary in France. The second FDI goal is strategic asset seeking. Chinese firms acquire various categories of strategic assets, with the aim to enhance their global competitiveness in international markets. The strategic assets the Chinese firms acquired through their FDI in France include industry-related technology, advanced production methods to upgrade their industrial capacity, R&D and innovation capabilities to develop higher added-value products and services as well as international recognised brands.

Despite the advantages offered by the host country, Chinese investors are aware of the difficulties on their internationalisation way in France. They might lack international experience (Deng, 2013; Wang et al., 2014). Moreover, the relatively high cultural differences between France and China can add difficulties in the management of a Sino-French subsidiary. Therefore, the headquarter-subsidiary relations between the parent company in China and its subsidiary in France are becoming important, of which particularly the issues of coordination and control. In this research, we focus on the following questions: How do Chinese multinational companies coordinate and exert control over their subsidiaries in France? What are the means used by Chinese companies to ensure the best coordination and control?

To bring answers to these research questions, we first reviewed the literature on the questions of coordination and management control of subsidiaries abroad. Then we conducted 17 face-to-face interviews with managers of Chinese subsidiaries located in France, which will be analysed. The structure of this article follows the same logic. The first part is devoted to a literature review, the second part details the data collection and analysis methodology whereas the third part discusses the results of our qualitative survey.

1. Control and coordination of a subsidiary abroad: what does academic literature teach us?

According to Mintzberg (1979), any organisation faces the complex issue to divide labour of tasks into subtasks to support specialisation, and the coordination of these subtasks to accomplish the overall task. An organisation can thus be defined as “the sum total of the ways in which its divides its labour into distinct tasks and then achieves coordination among them” (Mintzberg, 1979:2). In international management, coordination is a major and fundamental concern for companies (Martinez and Jarillo, 1989). Mintzberg (1979) distinguishes different mechanisms for coordinating work within an organisation: (1) Direct supervision, whereby coordination is achieved by one individual taking responsibility for the work of others, (2) Mutual

adjustment, whereby coordination of work is made possible by a process of informal communication between people conducting interdependent tasks, (3) Standardisation of work processes, where coordination is made possible by specifying the work content in rules or routines to be followed, (4) Standardisation of output, where coordination is obtained by communicating only expected results, without describing the actions to undertake to reach these results, (5) Standardisation of skills and knowledge, where coordination is reached through training so that employees know what is expected in an almost automatic way, (6) Standardisation of norms and socialisation, so to establish common values and beliefs in order for people to work toward common expectations. These coordination mechanisms are means to achieve a sufficient level of integration between different divisions within the same organisation and to optimise overall operational performance (Martinez and Jarillo, 1989).

Geringer and Hebert (1989:236-237) define control as “the process by which one entity influences, to varying degrees, the behaviour and output of another entity through the use of power, authority and a wide range of bureaucratic, cultural and informal mechanisms”. They add that as organisations expand in size, they face increased complexity and differentiation in their structures, as well as the risk of conflict, opportunistic behaviour and competing goals between or within units. As a result, top management confronts the crucial need to monitor, coordinate and integrate the activities of the organisation’s business units, including international joint ventures (IJVs). In this last case, international joint ventures, insufficient or ineffective control may limit the parent company’s ability to coordinate its activities, use its resources effectively and implement its strategy.

Between the 1950s and 1980s, researchers conducted empirical studies to find effective ways to improve coordination and control. The different ways that these studies underline to coordinate and control subsidiaries include: strategic planning, budgeting and functional plans (March and Simon, 1958), informal communication (Thompson, 1967), standardisation of processes, rules, procedures and results (Thompson, 1967; Galbraith, 1973; Mintzberg, 1979), meetings (Van De Ven, Delbecq and Koenig, 1976) as well as personal or direct control (Ouchi, 1979).

In their study of the evolution of research on coordination mechanisms in multinational corporations between 1953 and 1988, Martinez and Jarillo (1989) group extant research into three main streams. The first concentrates on the organisational structure of multinational corporations, including their departmentalisation, international divisions and product, area or matrix organisations. The second stream focuses on decision-making centralisation and bureaucratic control, which includes formalisation, standardisation and reporting. These authors stress that early studies did not distinguish clearly between centralisation and bureaucratic control. These first two streams focus more on formal mechanisms, whereas a third stream investigates more subtle mechanisms, such as informal communication, transfer of managers, behavioural control, socialisation, expatriation, visits, networks of people and corporate culture.

Ghoshal and Nohria (1989), studying headquarters–subsidiary relations, find that the optimal fit between environmental contexts and subsidiaries requires a combination

of three elements: centralisation of decision-making, formalisation and normative integration. Centralisation implies governance mechanisms in which the decision-making process is hierarchical, such that HQ makes most crucial strategic and policy decisions. The level of centralisation is measured by the degree of autonomy that HQs grant to subsidiaries to make decisions about their own strategies and policies, such as the design of new products, manufacturing or human resource management. Formalisation is establishing routine decision-making and resource allocation through manuals, standing orders, standard procedures, well-defined sets of rules and policies as well as continuous monitoring to ensure that rules have not been violated. Normative integration is based on consensus and shared values for decision-making, which require investments in socialisation of employees. The main instruments of normative integration are the time the subsidiary managers work at the HQ, the presence of HQ mentors for subsidiary managers and the number of HQ visits to subsidiaries. In their empirical survey, normative integration is referred to as socialisation, a designation that continues to be used widely in organisation theory.

Nine years later, Nobel and Birkinshaw (1998) confirmed that these three modes of control had been well established in organisation theory literature. They describe centralisation as the decision-making power retained by HQ over topics such as the firm's direction, new projects, standards, budgets, hiring, cooperation, training and compensation. Formalisation is routinised decision-making through rules, procedures, standards and reports. Socialisation consists of developing common expectations and shared values among organisation members through visits to and from other units, rotation and training, which promote like-minded decision-making.

Harzing and Noorderhaven (2006) acknowledge that the triptych centralisation-formalisation-socialisation of Ghoshal and Nohria (1989) is relevant for the context of Western MNCs in Asia, though they consider expatriation as a stand-alone complementary control dimension. Expatriation plays an important role in controlling foreign subsidiaries (Perlmutter and Heenan, 1974; Ondrack, 1985; Philips and Fox, 2003; Dowling, Festing and Engle, 2013). Western multinationals rather often send their own expatriates to manage subsidiaries abroad and thus reduce transaction costs (Kabst, 2004; Tan and Mahoney, 2006). Expatriates can also facilitate communication with the parent company and transmit central information (Jausaud, Mizoguchi, Nakamura and Schaaper, 2012). But at the same time, the high costs and frequent failures associated with expatriation have prompted MNCs to rely a lot on short-term assignments to subsidiaries in Asia, on the one hand (Petrovich et al. 2000; Bonache et al. 2010; Cartus, 2010) and on localisation of management positions, on the other hand (Schaaper et al., 2013).

The last decade, new forms of coordination and control have emerged, of which especially worldwide ERPs and intensive travel. One of the goals of an ERP is to gain managerial control over the firm's operations (Schwarz and Brock 1998; Willis and Chiasson 2007). According to Davenport (1998), ERPs centralise control and standardise processes. Yet Davenport (1998) also highlights the paradoxical impact of ERP on a firm's organisation and culture: they lead to higher degrees of centralisation,

but the availability of real-time data streamlines management structures and creates more flexible organisations. Schwarz and Brock (1998) note that ERP facilitates new organisational structures and that the wider availability of information to all employees facilitates communication, create stronger management teams and thus reinforces social control. With a quantitative survey of 156 companies in China, Wang (2007) asserts that the deployment of an ERP leads to flatter, more decentralised and standardised organisational structures.

The development of high-speed, global travel, as well as the remarkable progress in information and communication technologies, have changed the way people work, especially across national borders. Different empirical researches (Mayerhofer et al., 2004; Tahvanainen et al., 2005; Welch et al., 2007; Bonache et al., 2010) find that short-term assignments and international missions complement crucial but costly expatriation. Several studies emphasise the increased use of short-term assignments, especially for subsidiaries in China, the Indian subcontinent and South-East Asia (Petrovich et al. 2000; PriceWaterhouseCoopers 2005; Bonache et al. 2010; Cartus, 2010). Mayerhofer et al. (2004) state that the main purposes of short-term assignments are to provide expert knowledge, solve technical problems, conduct audits, attend meetings and conferences and deliver training. But these assignments also include supervisory activities and can as such be considered as a form of managerial control (Tahvanainen et al., 2005). Short-term assignees complement expatriates in their control function, but they also play an important role in circulating information throughout the network of subsidiaries.

Coordination and control mechanisms are not independent of each other and a company does not have to choose between formal and informal mechanisms. Multinational companies in general use a combination of mechanisms to coordinate and exert control over their subsidiaries abroad, depending especially on the strategic goal of the subsidiary and the size of the multinational (Amann et al., 2014). Extant research has studied the way how Western multinationals use control and coordination dimensions to manage their subsidiaries in Asia. However, there is a dearth of research on “reverse international management”, i.e. management of subsidiaries in developed countries owned by emerging country multinationals. Our research goal is to understand how Chinese companies combine the different mechanisms to better coordinate and control their subsidiaries in France.

2. Empirical methodology

The main purpose of this study is understanding how Chinese companies combine the different mechanisms and instruments to coordinate and exert control over their subsidiaries in France. Only a few academic empirical researches (Shen & Edwards, 2006; Fan et al., 2013; Wang et al., 2014) have explored this question. Therefore, we opted for qualitative interviews with, mostly Chinese, managers of Chinese subsidiaries established in France.

2.1 The empirical field is France

France is a developed, industrialised country and an attractive destination for Chinese outward FDI. In 2014, France and China celebrated the fiftieth anniversary of the establishment of diplomatic relations between the countries. This event intensified the development and cooperation between China and France. In 2019, France's GDP of 35,400 euro per capita is the 9th highest in Europe. With 66 million inhabitants, its total GDP of 2.5 billion euro is the third largest in Europe, after Germany (3.5 billion) and the UK (2.6 billion), and 6th largest worldwide. The French consumer market is the third largest in Europe, and offers good opportunities for Chinese firms. Furthermore, France is located in the Western part of the European Union, bordered by the North Sea, the Mediterranean Sea and the Atlantic Ocean. The air, road, maritime and rail transport systems are highly developed. Its neighbouring countries, Belgium, Luxembourg, Germany, Switzerland, Spain and Italy, and the UK (connected by a tunnel), also offer very attractive consumer markets. So, France is clearly a gateway to European markets. French firms have competitive advantages in many sectors, including aviation, nuclear power, chemical industries, medicine, and agriculture. France's strong mathematics, physics, and engineering cultures lead to the creation of excellent research output and innovation centres, both public and private. According to the statistics of the World Intellectual Property Organisation (WIPO, 2017), France ranks 6th worldwide in terms of international patents ownership. This has attracted the attention of Chinese companies, especially those looking for strategic assets.

2.2 Sample of Chinese subsidiaries in France

We initially contacted nearly 200 managers of Chinese subsidiaries located in France. However, the hierarchical nature of Chinese corporate culture sometimes leads Chinese expatriates to avoid interviews. Furthermore, expatriates who agreed to cooperate did not always fulfil our sample requirements. In total, we conducted face-to-face interviews with managers of 17 Chinese subsidiaries in France, including 11 Chinese expatriates and 6 local French managers. At the request of most of these interviewees, we do not provide the names of the companies, nor the interviewees' personal identities. With this guaranteed anonymity, the respondents spoke more freely and did not feel the need to ask for permission from supervisors in the powerful Chinese corporate hierarchy. Consequently, we only indicate industries in broad terms. We underline that the 17 interviews led to information saturation so that the last interviews which we conducted did not supply any new or significant information related to our research questions (Symon and Cassel, 1998). Table 1 contains an overview of the sample.

Table 1: Sample characteristics

Case	Founded	Ownership	Age years	Employees worldwide	Industry sector	Manufacture trade service	Entry year France	Entry mode	Subsidiary capital structure	Employees in France
C1	2006	SOE	9	1 000	Consumer goods	Service	2012	M&A	IJV 70%/30%	15
C2	1997	SOE	18	30 000	Maritime transport	Service	1999	Green-field	100% China WOS	23
C3	1995	SOE	20	19 000	Real estate industry	Service	2012	Green-field	100% China WOS	6
C4	1996	Private	19	1 400	Nuclear industry	Manufac-turing	2013	M&A	100% China WOS	10
C5	2001	Private	14	4 000	Wig manuf-acturing	Manufac-turing	2012	Green-field	100% China WOS	20
C6	1988	Private	27	150 000	Telecommu-nications	Service	2003	Green-field	100% China WOS	650
C7	1955	SOE	60	16 000	Engine manuf-acturing	Manufac-turing	2011	M&A	100% China WOS	100
C8	1996	Private	19	2 500	Broadcasting & cable TV	Service	2009	Green-field	100% China WOS	5
C9	1996	Private	19	1 200	Wolfberry processing	Manufac-turing	2012	M&A	100% China WOS	20
C10 ¹	2004	SOE	11	110 000	Chemical industry	Manufac-turing	2006 2007	M&A M&A	100% China WOS IJV 80%/ 20%	3100
C11	1903	Private	112	28 000	Beer production	Manufac-turing	1995	Green-field	100% China WOS	5
C12	1991	Private	24	10 000	Medical equipment	Manufac-turing	2008	M&A	100% China WOS	47
C13	1946	SOE	69	55 000	Diesel ma-nufacturing	Manufac-turing	2009	M&A	100% China WOS	190

Case	Founded	Ownership	Age years	Employees worldwide	Industry sector	Manufacture trade service	Entry year France	Entry mode	Subsidiary capital structure	Employees in France
C14	1978	SOE	37	130 000	Steel manu- facturing	Manufac-turing	1995	M&A	100% China WOS	25
C15	1980	SOE	35	16 000	Service sector	Service	1992	Green- field	100% China WOS	20
C16	1961	SOE	54	130 000	Maritime transport	Service	1991	Green- field	100% China WOS	30
C17	2008	Private	7	100	Mining industry	Mining	2013	M&A	IJV 75%/25%	20

¹ Chinese enterprise (CE) 10 conducted two acquisitions, in 2006 and 2007.

Notes: SOE = state-owned enterprise, M&A = merger and acquisitions, WOS = wholly owned subsidiary, IJV = international joint venture. For the IJVs, the first percentage listed refers to the amount held by the Chinese partner, and the second percentage is the amount held by the French partner

The sample is diversified and interesting to analyse. Our sample contains both SOEs (8 cases) and private companies (9 cases), which invested in various industrial and service activities, including manufacturing (steel, diesel engines, tractors, consumer goods, medical equipment), transport, and services (real estate, telecommunication, broadcasting). This confirms Rui and Yip's classification (2008:213) when they ranked Chinese acquisition firms in three categories: large SOEs which are impelled by the Go Global policy; large or small public share-issuing companies and private companies. Concerning the preferred entry mode, most of the investing Chinese companies use wholly owned subsidiaries to settle in France (15 out of 18 cases), of which eight through greenfield investments and seven through M&As. Three Chinese companies opted for an M&A through an international joint venture with a local French partner. However, in case of international joint ventures, the Chinese partner holds a strong majority part of the IJV shares (70, 75 and 80 percent respectively). Our sample characteristics fit in largely with the observations of Zhang et al. (2013: vii) that, based on MOFCOM and Eurostat data, "Chinese investors largely opt for wholly owned subsidiaries and majority owned joint venture to establish in Europe".

2.3 Interviews

To prepare for the interviews, we wrote a semi-structured interview guide in French and Chinese. The interview guide started with questions about the history of the MNC in its home country and the development of their internationalisation. With two open-ended questions, we encouraged managers to describe first their main reasons for investing in France and the entry mode their firm used. Then, we focused on the management of their subsidiary in France, asking the respondents to describe their expatriation and localisation policies, including the number of expatriates and local managers, their roles and management positions, the level of centralised decision-making (strategic, operational and budget decisions), the use of formal control mechanisms (ERP systems, written procedures, job descriptions, reporting) and informal control mechanisms (short-term visits and missions, training, task rotation, corporate culture, shared values, meetings between the parent company and the subsidiary). Again, we asked the respondents to explain in greater depth, when relevant, the reasons for their management practices. The interviews were held in 2015. They lasted between 45 minutes and 2.5 hours, sometimes including a visit to the company. Intentionally, we did not record the interviews, because doing so with the Chinese subordinate expatriates would have required permission from corporate hierarchies, which is difficult to obtain within Chinese corporate culture. Instead, during the interviews we took carefully handwritten notes and immediately after the meeting we fully wrote out the content of the interview. We sent back the written transcripts to the interviewees and asked for their feedback and validation.

2.4 Data analysis

The data analysis followed the qualitative methodology of Silverman (2006) and Miles

and Huberman (1994), who recommend a full transcription of the interviews, the development of a coding frame which fits in with the theoretical background, a pilot test and coding. More precisely, after the full transcription of the interviews, we distributed the text of the full transcripts of the 17 interviews into a thematic content analysis grid, with one column per interview and one row per question or sub-question on the interview questionnaire. Then, on the basis of our research questions and expectations as well as empirical results published in academic journals, we drew up an initial list of pre-specified codes (numbers, keywords, short phrases) related to the main instruments which multinationals frequently use to coordinate and exert control over their overseas subsidiaries. We reduced the fully transcribed interview grid, question by question and interview by interview (i.e. cell by cell) according to these pre-specified codes. During the coding of the interviews, we added some spontaneously evoked codes, which Miles and Huberman (1994) call “emerging codes”. Thus we obtained a reduced content analysis grid. To check the reliability of the coding, each member of the research team performed individual coding. Any differences were resolved through discussion. We also added some supplementary variables drawn from external secondary data sources, such as websites, trade directories and Chinese government investment agencies, which enabled us to understand the FDI choices made by the interviewed companies. In relation to our research question, we looked specifically, row by row, for similarities and contrasts between the interviewed Chinese companies. We finished the analysis with repeated readings of the interviews.

3. Results: How Chinese companies carry out coordination and keep control over their subsidiaries in France?

After a thorough analysis of our qualitative data, coding and categorisation of the 17 interviews, we find that Chinese companies coordinate and exert control over their French subsidiaries by combining four main dimensions of mechanisms, which are: control through the share of capital that the parent company owns in the subsidiary (§3.1), control and coordination through decentralised decision-making (§3.2), control and coordination through formalisation of the subsidiary’s organisation (§3.3) and control and coordination through international human resources which the Chinese parent company sends to their subsidiary in France (§3.4).

3.1 Contractual control through the share of capital that the MNC detains in a subsidiary

The percentage of capital that an MNC owns in a subsidiary is a key instrument of control. Since the end of the 1990s, there is a real trend to use more and more wholly owned subsidiaries instead of international joint ventures as an entry mode, for several reasons. First, due to international trade agreements, most sectors worldwide have been opened to full foreign-owned investments. Second, wholly owned subsidiaries offer better control over foreign operations. Moreover, wholly owned subsidiaries are easier to manage and potentially induce less conflict than international joint ventures.

Third, a wholly owned subsidiary is less prone to leakage of sensitive production know-how and technology or allow better integration of acquired technologies. Fourth, MNCs with long international experiences have the capabilities to set up subsidiaries abroad without the help of local partners. We can however stress that this seems not to be the case of Chinese multinationals, when they do direct investments in developed countries. Although the general point of view is that wholly owned subsidiaries are nowadays most appropriate for FDI, in some cases international joint ventures still offer a good alternative solution, for several reasons. In particular, local partners might facilitate and accelerate administrative and bureaucratic procedures. Also local partners are sometimes useful for developing local distribution or logistics networks and might have better and deeper knowledge of local consumer's needs.

Looking closely at table 1, summarizing the sample characteristics, we see that in 15/18 cases (C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15 and C16), the Chinese companies have chosen the wholly-owned subsidiary as their entry mode into France. 7 of these 15 firms did a merger-acquisition of an existing French firm, whereas 8 of these firms did a greenfield investment, i.e. that they created a new subsidiary. Three Chinese investments in France were done with a local French partner, in the form of an international joint venture. However, in all three cases, the Chinese partner acquired a large majority share of the capital of the international joint venture. So we confirm that Chinese firms in France clearly prefer to invest detaining a high share of capital, 100% in most cases. The first reason for such clear preference for 100% acquisitions is that foreign investors in France are not obliged to join with a local partner in a joint venture, as is sometimes still the case for French investments in China, which allowed them to acquire fully existing French firms.

The second reason is related to the asset-seeking goal pursued by several Chinese companies of our sample. To accelerate the integration of the acquired assets, the best way is to take full control over companies abroad. Chinese companies are known for cheap labour, which has allowed them in the 1990s to produce at low costs and sell massively worldwide through export. However, their capacity to innovate remains modest. In recent years, the Chinese state and Chinese companies have become aware of the importance of R&D and innovation. There is now a change ongoing in China's economic structure, from low-cost to high value-added production. France is known in China as a technological advanced country and is one of the main destinations for asset-seeking Chinese FDI. The seven companies of our sample (C4, C7, C9, C10, C12, C13 and C14) which did 100% M&A of existing French firms, explained that they aimed with these acquisitions to upgrade their technologies and knowledge. Full, 100% acquisitions allowed them not only to obtain patents, technologies and knowledge quickly, but also to integrate research and development teams, local managers and qualified employees. A wholly owned subsidiary guaranteed better control, facilitated the integration of processes and transfer of know-how internally.

Nine companies of our sample (C1, C4, C7, C9, C10, C12, C13, C14 and C17) explained that they had limited international experience. Consequently, they wanted to obtain knowledge in international management, but also knowledge about European

consumer behaviour, marketing and international financing. Their full acquisitions in France enabled them to improve their management techniques and to transfer the best practices to the parent company in China.

In addition, three Chinese companies (C1, C10 and C17) have chosen the creation of an international joint venture, partnering with a French company, while taking a large majority stake in the capital: 70% for C1, 80% for C10 and 75% for C17. Hennart (1991) reminds that the percentage of the capital held by the partners in a joint venture determines the degree of control, while Killing (1983) reminds that generally the partner with the majority share of the capital has the greatest level of control. So, the majority stake held by the Chinese companies, allows them to reduce risk while benefitting from the knowledge of the French partner, including technical knowledge, local market knowledge and management skills.

Overall, we see that the Chinese companies of our sample opt for wholly owned subsidiaries or large majority stakes in international joint ventures, to keep control over their subsidiaries in France. Such high levels of control enable the Chinese companies to access technologies, to acquire knowledge in France and to transfer this knowledge to the parent company in China, with the aim to improve its global competitiveness.

3.2 Control and coordination through decentralised decision-making

Centralisation implies governance mechanisms in which the decision-making process is hierarchical, such that HQ makes most crucial strategic and policy decisions. The degree of centralisation determines in turn the degree of autonomy that HQ grant to subsidiaries to make decisions about their own strategies, such as the design of new products, manufacturing, financial decisions, marketing or human resource management. High centralisation of decision-making allows managers at the headquarters to keep tight control over subsidiaries abroad, whereas overseas' subsidiaries only have a simple role of executor. Centralisation generally is accompanied by standardisation of management policies and practices within the network of the company, which facilitates economies of scale and increases the efficiency of operations worldwide. However, there may be communication problems and misunderstandings between the parent company and subsidiaries. Also, central decisions may sometimes not meet the needs of local consumers or not allow benefitting from local opportunities.

We identified four main dimensions of decision-making within the subsidiaries of our sample: strategic, financial, human resources and marketing decisions. Table 2 shows that for half of the cases, the strategic decisions, which engage the subsidiary for a long period, are centralised at the parent company, while operational decisions, that are implemented at a day-to-day management level, are largely decentralised in all cases. Thus, we can state that Chinese subsidiaries in France enjoy a high level of autonomy.

Table 2: Centralisation - autonomy of decision-making in the Chinese subsidiaries of our sample.

Subsidiary	Decision-making			
	Strategy	Finance	Marketing	Human Resources
C1	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C2	HQ	Subsidiary	Subsidiary	Subsidiary
C3	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C4	HQ	Subsidiary	Subsidiary	Subsidiary
C5	HQ	HQ	Subsidiary	Subsidiary
C6	HQ	Subsidiary	Subsidiary	Subsidiary
C7	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C8	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C9	HQ	Subsidiary	Subsidiary	Subsidiary
C10	HQ	Subsidiary	Subsidiary	Subsidiary
C11	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C12	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C13	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C14	Subsidiary	Subsidiary	Subsidiary	Subsidiary
C15	HQ	Subsidiary	Subsidiary	Subsidiary
C16	HQ	Subsidiary	Subsidiary	Subsidiary
C17	Subsidiary	Subsidiary	Subsidiary	Subsidiary

The main reason for Chinese companies to practice high levels of decentralised decision-making is linked to the market seeking goals for their French FDI. Most Chinese firms of our sample invested in France with the aim to sell on the French and European consumer markets, and even on African markets (which for political, historical and geographical reasons are linked to France), though they lack international marketing competencies. The Chinese managers of the parent company not always have sufficient knowledge of the French or European markets their company wishes to penetrate, which exhibits large cultural differences with the Chinese market. European consumer behaviour is different both in terms of preferences and purchasing habits. A lack of knowledge about these markets prevents Chinese HQs from making the right decisions. So, decentralising decisions especially in the field of marketing and HRM, allows Chinese companies to adapt correctly their sales strategy the local consumer needs.

Our interviews reveal that the decentralisation of decision-making provides some substantial advantages for the Chinese parent company. First, local decision autonomy enables Chinese companies to benefit from the knowledge of local managers of the French and European consumer markets and to implement quickly decisions. Secondly,

the decision-making autonomy enjoyed by local managers creates a sense of belonging, which motivates, involves and empowers local staff and increases trust between the parent company and the subsidiary. In turn, it reduces turn-over of local managers after an acquisition. Finally, the autonomy of local managers is an effective way for the Chinese parent company to learn from their experience and managerial techniques and thus compensate for the international inexperience of Chinese managers.

3.3 Control and coordination by formalising the subsidiary's organisation

Ghoshal and Nohria (1989) define formalisation as routine decision-making and resource allocation through the use of manuals, standing orders, and procedures to ensure that rules have not been violated. Birkinshaw (1998) confirms that formalisation is routinised decision-making power through rules and procedures.

Chinese subsidiaries in France generally benefit from a high level of decentralisation in their decision-making. To compensate for this autonomy, the Chinese companies in our sample put the formalisation of the organisation at the centre of their coordination and management control system. The objective the parent companies pursue with the implementation of formalisation mechanisms is to better look over and control the activities and operations of its subsidiaries in France.

All the 17 subsidiaries of our sample report regularly to their parent company in China. Ten companies (C2, C4, C5, C6, C10, C11, C12, C13, C15 and C16) report at least once a month. According to these companies, frequent reporting facilitates the communication between the parent company in China and the subsidiary in France. It enables the HQs to measure the performance of their subsidiary and to carry out a diagnosis of the situation in the case of a problem. In the context of decentralised management, reporting also enables the Chinese HQs to verify that the subsidiary complies with the general rules.

The second formalisation tool which Chinese companies use to monitor the performance of their subsidiary in France are ERP systems. Nine companies of our sample (C2, C4, C6, C7, C10, C12, C13, C15 and C16) implemented an ERP. The objective that Chinese parent companies pursue with these ERPs is to coordinate international operations, including production, inventories, accounting, purchasing and sales of their company on a same central platform. ERPs allows Chinese HQs to standardise processes, to keep a global overview and to optimise coordination and communication between subsidiaries and HQ.

Seven companies (C1, C4, C5, C6, C8, C15 and C16) of our sample stressed the importance of written standardisation of processes, as this contributes to better coordination of work between the parent company in China and the subsidiary in France. Culturally, Chinese companies extensively use written documents to prevent misunderstandings. According to the companies we interviewed, standardising processes with formal written documents leads to better coordination.

In short, in the context of decentralised management practiced by most Chinese companies of our sample, formalisation plays a complementary and necessary role in coordinating and controlling Chinese subsidiaries in France.

3.4 Control and coordination by international human resources

Sending expatriate managers to a foreign subsidiary is a frequently used control mechanism. However MNC might pursue different and complementary goals when appointing expatriates. First, “from a control and coordination perspective, the appointment of an expatriate [...] helps to ensure that the way the affiliate is managed is in line with the interest of the parent company [...]; the expatriate can thus be considered either as a means of headquarters supervision or as a mechanism of social control” (Belderbos and Heijltjes, 2005, p. 345). Second, “from a perspective of knowledge creation and learning, the objective of the parent when assigning an expatriate is to develop managers by means of foreign experience or [...] to develop the organisation so that a knowledge network is created through expatriation” (Belderbos and Heijltjes, 2005, p. 345).

Table 3 lists whether key management positions in the subsidiaries of our sample are occupied by a local manager or by a Chinese expatriate. In addition, the last column gives the number of Chinese expatriates working in the Chinese subsidiary in France.

Table 3: Key management positions held by Chinese expatriates and local managers.

Subsidiary	Key Positions					No. of expatriates
	CEO	Marketing	CFO	Production	HRM	
C1	Local	Local	Local	Local	Local	0
C2	Chinese	Local	Local	/	Local	2
C3	Chinese	Local	Local	Local	Local	1
C4	Local	Local	Local	Local	Local	0
C5	Chinese	Local	Local	/	Local	1
C6	Local	Local	Local	Local	Local	1
C7	Chinese	Local	Local	Local	Local	3
C8	Chinese	Local	Local	/	Local	1
C9	Chinese	Local	Local	Local	Local	1
C10	Local	Local	Local	Local	Local	0
C11	Chinese	Local	Local	Local	Local	1
C12	Local	Local	Local	Local	Local	0
C13	Local	Local	Local	Local	Local	1
C14	Local	Local	Local	/	Local	1
C15	Chinese	Local	Local	/	Local	3
C16	Chinese	Local	Local	/	Local	3
C17	Local	Local	Local	Local	Local	0

Table 3 clearly shows that control and coordination by expatriation is relatively weak for Chinese companies in France. Only nine of the seventeen subsidiaries in our sample

have a Chinese CEO. This result is rather different from the French case in China. For instance, Schaaper et al. (2011) reveal that many French subsidiaries in China grant a central role to expatriates in their Chinese subsidiaries, and underline the importance of appointing an expatriate CEO. French companies in China show a more ethnocentric management than Chinese companies in France, which show a rather polycentric management style (Gao & Schaaper, 2018).

Sending expatriates to foreign subsidiaries is costly (Latta 1999; Wong and Law 1999; Selmer 2003) and not always efficacious (Tung 1981; Black et al. 1991) leading sometimes to failure or negative effects in host-country business (Harris and Brewster 1999). To limit the extensive use of expatriates, MNCs send experts from headquarters or other units of the MNC's network, on short-term assignments to their subsidiaries abroad. Short-term international assignments are longer than a business trip but shorter than the typical expatriate assignment, usually between one and six months. A short-term assignee is both less costly and more flexible than traditional long-term expatriates while performing some of his or her functions (Mayerhofer et al., 2004). Short-term missions are of increasing importance, and studies show that their use is growing at least as fast as the use of expatriates (Bonache et al. 2010; Mayerhofer et al. 2004). The main purpose of short-term assignments is to set up projects, provide expert knowledge, support technical problem solving, conduct audits, deliver training courses, do negotiations and supervisory activities (Welch et al., 2007, Mayerhofer et al., 2004). Short-term assignees thus bring in skills and knowledge to specific locations, which might lack locally, on short notice. Also, through their frequent travel, international short-term assignees collect and transfer information and knowledge about foreign markets and operations through the subsidiary network of the MNC as well as between HQs and foreign subsidiaries. Moreover, sending managers and engineers on short-term assignments contributes to their personal managerial development and prepare them for future expatriation (Tahvanainen et al., 2005).

The Chinese companies of our sample do not practice intensively control and coordination of their subsidiaries through expatriation. To compensate, they send rather frequently short-term assignees to their subsidiaries in France. Sometimes these assignments are intended for high-level Chinese executives coming from the HQs who visit briefly the French subsidiary. The duration of assignments varies greatly, depending on the company and the mission, but in our sample, this type of travel rarely exceeds 6 months. In most cases, Chinese assignees come to France alone, without their family, while keeping their main job in China. Chinese companies confirm that short-term assignments can sometimes offer young Chinese executives the opportunity to work with French or European teams so that they gain international experience, preparing them for future expatriation.

Conclusion

The main objective of this research is to understand how Chinese companies use various mechanisms to manage their subsidiaries in France and maintain control over them. In order to provide empirical answers to our research questions, we conducted 17 face-to-

face interviews with managers in charge of Chinese subsidiaries in France. We note that Chinese companies use four main dimensions of coordination and control mechanisms to manage their subsidiaries in France: control through the share of capital they detain in a subsidiary, control and coordination by decentralised decision-making, control and coordination by formalising the subsidiary's organisation as well as control and coordination by international human resources coming from the Chinese headquarters.

As far as the share of capital is concerned, Chinese companies have a clear preference for wholly owned subsidiaries or a large majority share of the capital in case of a joint venture. This strong equity investment facilitates the acquisition and transfer of technology and knowledge to the parent company. In addition, the parent company must maintain strong control over the activities of their subsidiary in France. As regards centralisation, Chinese companies primarily decentralise and grant decision-making autonomy to local managers in order to compensate for the lack of international experience of Chinese managers. Such decentralisation allows Chinese companies to better meet the needs of local consumers. It also allows Chinese companies to establish a relationship of trust and cooperation with their local, French, managers, which creates a sense of belonging and strengthens long-term cooperation.

Within the framework of decentralised management practiced by Chinese companies in our sample, formalisation is a central tool to coordinate foreign activities and exert control over subsidiaries in France. Formalisation allows Chinese companies to have a global and transversal view on the operations of their subsidiaries. The Chinese companies of our sample formalise the relationship between HQs and the subsidiaries through a mix of reporting, integrated ERPs as well as written standards and procedures.

For the Chinese companies in our sample, we note that the coordination and control mechanisms they implement are not independent. Formal mechanisms are complemented with more informal mechanisms with human interaction. Also, the Chinese companies of our sample do not practice intensively control of their subsidiaries through expatriation. Expatriates have more observational roles. In addition to expatriation, Chinese companies frequently send short-term assignees to their subsidiaries in France. This international HRM policy generates exchanges and communication between managers of the parent company and those of the subsidiary, with an emphasis on non-hierarchical information flows between managers. This allows them to share the company's values and goals in a more relaxed environment.

Our research on the coordination and control of Chinese subsidiaries in France has its limits. First, due to the small sample size, we cannot generalise without caution our results to a broader context. Also, the control and coordination mechanisms that Chinese companies implement in their subsidiaries abroad can be radically different if the strategic objectives of the subsidiaries are not market-seeking or asset-seeking in developed countries, but the acquisition of natural resources, in Africa, or low-cost production, in South-East Asian countries. In such case, the Chinese control model and management style are probably different.

References

- Amann, B., Jaussaud, J., and Schaaper, J. (2014), Clusters and Regional Management Structures by Western MNCs in Asia: Overcoming the Distance Challenge, *Management International Review*, 54(6), 879-906B
- Belderbos, A., Heijltjes, R.G. (2005). The determinants of expatriate staffing by Japanese multinationals in Asia; control, learning and vertical business groups. *Journal of International Business Studies*, 36 (3), 341-354.
- Black, J., Mendenhall, M., and Oddou, G. (1991). Toward a Comprehensive Model of International Adjustment: An Integration of Multiple Theoretical Perspectives, *Academy of Management Review*, 16, 2, 291-317.
- Bonache, J., Brewster, C., Suutari, V., and De Saá, P. (2010). Expatriation: Traditional Criticisms and International Careers, *Thunderbird International Business Review*, 52, 4, 263-274.
- Business France (2018). The international development of the French economy, Annual report, available on-line, <https://www.businessfrance.fr/>
- Cartus (2010). http://www.cartus.com/pdfs/Global_Policy_2010.pdf
- Davenport T.H. (1998). Putting the enterprise into the enterprise system. *Harvard Business Review*, 1998, pp.121-131.
- Deng, P. (2013). Chinese outward direct investment research: Theoretical integration and recommendations, *Management and Organization Review*, 9(3): 513–539
- Dowling, P.J., Festing, M. and Engle, A.D. (2013). *International Human Resource Management*, 6th ed., Cengage Learning EMEA, Hampshire.
- Fan, D., Zhang, M.M. and Zhu, C.J. (2013). International human resource management strategies of Chinese multinationals operating abroad, *Asia Pacific Business Review*, 19 (4), 526–541
- Gao N., Schaaper, J. (2018). Chinese Foreign Direct Investment in France: Motivations and Management Style, *Management International*, 22, special number, 113-129
- Galbraith, J. R. (1973). *Designing complex organizations*. Reading, MA: Addison-Wesley.
- Geringer, J.M., Hebert, L. (1989). Control and performance of international joint ventures. *Journal of International Business Studies*, 20 (2), 235-254.
- Ghoshal, S. and Nohria, N. (1989). Internal differentiation within multinational corporations, *Strategic Management Journal*, 10, 323-337
- Harris, H., and Brewster, C. (1999). The Coffee-Machine System: How International Selection Really Works, *International Journal of Human Resource Management*, 10 (3), 488-500
- Harzing, A.W. (2001). Who's in Charge? An Empirical Study of Executive Staffing Practices in Foreign Subsidiaries, *Human Resource Management*, 40, 2, 139-158.
- Harzing, A. W. and Noorderhaven, N. (2006). Geographical distance and the role and management of subsidiaries: The case of subsidiaries down-under, *Asia Pacific Journal of Management*, 23 (2), 167-185.
- Hennart, J.F. (1991). The Transaction Cost Theory of Joint Ventures: An Empirical Study of Japanese Subsidiaries in The United States. *Management Science*, 37, 483-497
- Jaussaud J. and Schaaper J. (2006). Control mechanisms of their subsidiaries by multinational

- firms: a multidimensional perspective, *Journal of International Management*, 12, 23-45
- Kabst, R. (2004). Human resource management for international joint ventures: expatriation and selective control. *The International Journal of Human Resource Management*, Vol. 15 No. 1, pp. 1-16.
- Latta, G.W. (1999). Expatriate Policy and Practice: A Ten Year Comparison of Trends, *Compensation and Benefits Review*, 31, 4, 35-39.
- March, J. and Simon H. (1958). *Organizations*. New York, Wiley, Traduction française: *Les Organisations*, Paris, Dunod, 1965.
- Martinez, J.I., Jarillo, J.C. (1989). The evolution of research on coordination mechanisms in multinational corporations. *Journal of International Business Studies*, 20 (3), 489-514.
- Mayerhofer, H., Hartmann, L.C., and Hebert, A. (2004). Career management issues for flexpatriate international staff. *Thunderbird International Business Review*, 46 (6), 647-666.
- Miles M. and Huberman, A. (1994). *Qualitative Data Analysis*, 2d ed. SAGE, London.
- Mintzberg, H. (1979). *The Structuring of Organisations*. Prentice-Hall, Englewood Cliffs, NJ
- Nobel, R. and Birkinshaw, J. (1998). Innovation in multinational corporations: control and communication patterns in international R&D operation, *Strategic Management Journal*, 19(5), 479-498
- Ondrack, D.A. (1985). International Transfers in North American and European MNEs. *Journal of International Business Studies*, Vol. 16, N° 3, p. 1-19.
- Ouchi, W.G. (1977). The relationship between organizational structure and organizational control. *Administrative Science Quarterly*, 22 (1), 95-114.
- Perlmutter, H. V. and Heenan, D. A. (1974). How Multinational Should Your Top Managers Be?, *Harvard Business Review*, 52(6) 121-132.
- Petrovic, J., Harris, H., and Brewster, C. (2000). *New Forms of International Working*, CReME Research Report, 1/00 Cranfield School of Management, Cranfield University, UK.
- Phillips, L., Fox, M.A. (2003). Compensation strategy in transnational corporations. *Management Decision*, Vol. 41 No. 5/6, p. 465-76.
- PriceWaterhouseCoopers (2005). http://www.pwc.lu/en_LU/lu/hr/docs/hrs-062005.pdf
- Rui, H, Yip, G. (2008). Foreign acquisitions by Chinese firms: A strategic intent perspective, *Journal of World Business*, Vol. 43, N° 2, p. 213-26.
- Schaaper J., Mizoguchi, S., Nakamura, H., and Yamashita, S. (2011). Control of French and Japanese Subsidiaries in China; Implementing Control Mechanisms Before and After the Global Economic Crisis, *Asia Pacific Business Review*, 17 (4), 411-430.
- Schaaper, J., Jaussaud, J., Mizoguchi, S. and Nakamura, H. (2012), Coordination et contrôle des filiales à l'étranger, une enquête qualitative auprès de filiales françaises et japonaises en Chine, *Finance Contrôle Stratégie*, 15(1) 65 – 85
- Schaaper J., Amann, B., Jaussaud, J. Mizoguchi, S., Nakamura, H. (2013). Human Resource Management in Asian Subsidiaries: Comparison of French and Japanese MNCs, *International Journal of Human Resources Management*, 24 (7), 1454-1470.
- Schwarz, G.M., and Brock, D.M. (1998). Waving hello or waving good-bye? Organizational change in the information age. *International Journal of Organization Analysis*, 6 (1), 65-90.

- Selmer, J. (2003). Staff Localization and Organizational Characteristics: Western Business Operations in China, *Asia Pacific Business Review*, 10 (1), 43-57.
- Shen J. and Edwards V. (2006). *International Human Resource Management in Chinese Multinationals*, Routledge, Taylor & Francis Group
- Silverman, D. (2006). *Interpreting Qualitative Data: Methods for Analysing Talk*. Text and Interaction, Sage, London.
- Symon, G. and Cassel, C. (1998). *Qualitative Methods and Analysis in Organizational Research*. Sage Publications, Newbury Park, CA.
- Tahvanainen, M., Welch, D., and Worm, V. (2005). Implications of Short-term International Assignments, *European Management Journal*, 23, 6, 663-673.
- Tan, D. and Mahoney, J.T. (2006). Why a multinational firm chooses expatriates: integrating resource-based, agency and transaction costs perspectives. *Journal of Management Studies*, 43 (3) 457-484.
- Thompson, J.D. (1967). *Organizations in Action: Social Science Bases of Administrative Theory*, University of Illinois.
- Tung, R. L. (1981). Selection and Training of Personnel for Overseas Assignments, *Columbia Journal of World Business*, 16, 1, 68-78.
- Van De Ven, A., Delbecq, A., and Koenig, D. (1976). Determinants of coordination modes in organizations. *American Sociological Review*, 41, 322-338.
- Wang, L. (2007). The impact of ERP deployment upon organizational structure: A mixed method study of Chinese practices. Doctoral Thesis, Loughborough University.
- Wang, S.L., Luo, Y., Lu, X., Sun, J., Maksimov, V. (2014). Autonomy delegation to foreign subsidiaries: An enabling mechanism for emerging-market multinationals, *Journal of International Business Studies*, Vol. 45, N° 2, p. 111-130
- Welch, D.E, Welch L.S, and Worm V. (2007). The International Business Traveller: A Neglected but Strategic Human Resource, *International Journal of Human Resource Management*, 18 (2), 173-183.
- Willis, R and Chiasson, M. (2007). Do the ends justify the means? A Gramscian critique of the processes of consent during an ERP implementation, *IT & People*, 20 (3), 212-234.
- WIPO (2017). World Intellectual Property Indicators, *Economics & Statistics Series*. World Intellectual Property Organization, yearly report 2016.
- Wong, C. and Law, K. S. (1999). Managing Localization of Human Resources in the PRC: A Practical Model, *Journal of World Business*, 34, 1, 26-40.
- Zhang, H., Yang, Z., Van Den Bulcke, D. (2013). Euro-China Investment report 2013-2014. Chinese owned enterprises in Europe: a study of corporate and entrepreneurial firms and the role of sister city relationships, *Euro-China Centre at the Antwerp Management School*, Antwerp

The Role of Foreign Capital Inflows on Economic Growth of the Southeast Asian Least Developed Countries

Utai Uprasen*

Abstract The economic development of the least developed countries relies on foreign capital inflows significantly. The existing literature indicates the ambiguous effects of capital inflows on economic growth. This work investigates the effect of foreign capital flows on Southeast Asian least developed countries: Cambodia, Lao PDR and Myanmar, by including remittance, foreign direct investment and official development assistance in the regression simultaneously. An autoregressive distributed lag (ARDL) model, based on neoclassical growth theory, is employed using annual data between 1980 and 2017. Our empirical findings reveal that the short run effect of international remittance becomes insignificant in the long run in Cambodia and Lao PDR, whereas the short run positive impact still remains in the long run for Myanmar. The foreign direct investment raises economic growth in all three countries in both short run and long run. Lastly, while the short run contribution of official development assistance on economic growth of Cambodia and Lao PDR still remains in the long run, the effect becomes insignificant for Myanmar.

Keywords: Foreign capital inflows; Economic growth; Southeast Asia

JEL classification: O40; C22

1. Introduction

The countries in Southeast Asia have formed the Association of Southeast Asian Nations or ASEAN since 1967 in order to promote economic growth and regional stability among the member states. Currently, the member states comprise Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar or Burma, the Philippines, Singapore, Thailand, and Vietnam. Among ten states, three countries are classified as least developed countries: Cambodia, Lao PDR and Myanmar. Due to the low domestic investment, these least developed countries rely on foreign capital inflows to promote their economic growth considerably. However, the existing works reveal the unclear impact of foreign capital flows on economic growth. Additionally, most

Utai Uprasen (✉)*

* Pukyong National University, Korea

email : Utai_uprasen@pknu.ac.kr

of the studies examine the effect of a single foreign capital inflow on economic growth, which may create omitted variable bias in the study. As a consequence, this study scrutinizes the role of foreign capital inflows on growth of economy of three least developed Southeast Asian countries by including three important kinds of foreign capital inflows in the estimations simultaneously: remittance, foreign direct investment and official development assistance. Hence, the study minimizes the potential omitted variable bias. This produces more reliable empirical outcomes.

The study is structured as the followings. While section 1 is introduction, section 2 gives background of least developed Southeast Asian countries. Literature review is presented in section 3 and the methodology is demonstrated in section 4. While the estimation results are presented in section 5, conclusion of study is drawn in section 6.

2. The least developed Southeast Asian countries

The general backgrounds of the ASEAN member states are presented in table 1. The statistics exhibit the different level of economic development across ten member states. As stated by the World Bank and the United Nations, while Brunei and Singapore are high-income economies, the rests are either lower or upper middle income economies. Nonetheless, Cambodia, Lao PDR and Myanmar are classified as least developed countries. Not only low level of GNI per capita, but also the poverty rates in these three countries are significantly high. For instance, the population living under the national poverty line in Myanmar accounts for around 32 per cent.

Table 1. ASEAN's country profile

Country	Population (2018)	GNI per capita (2018)	Poverty (2016)	HDI (2017)	Level (2018)
	Million	USD	%		
Brunei	0.43	31,020	n.a.	0.853	HII
Cambodia	16.25	1,380	14.0	0.582	LMI*
Indonesia	267.66	3,840	10.9	0.694	LMI
Lao PDR	7.06	2,460	23.2	0.601	LMI*
Malaysia	31.53	10,460	0.4	0.802	UMI
Myanmar	53.71	1,310	32.1	0.578	LMI*
Philippines	106.65	3,830	21.6	0.699	LMI
Singapore	5.64	58,770	n.a.	0.932	HII
Thailand	69.43	6,610	8.6	0.755	UMI
Vietnam	95.54	2,400	7.0	0.694	LMI

Note:

1. Poverty shows the population living under the national poverty line.
2. HDI = Human Development Index, HII = High-income economies, UMI = Upper-middle-income economies, LMI = Lower-middle-income economies

3. * denotes the least developed countries, based on the United Nations.

Source: World Development Indicators (WDI) and ASEANstats.

In addition, the standard of living in three countries are considerably poor. For example, the infant mortality rate in Lao PDR is 49 per cent. The life expectancy at birth is lower than 70 years old in all three countries. Most of the population depend on agriculture for their survivals.

Table 2. ASEAN's Least developed countries

Indicator	Cambodia	Lao PDR	Myanmar
Adult Literacy Rate (%)	84.4 b	84.7 c	89.7 b
Infant Mortality Rate, IMR (per 1,000 live births)	25.0 a	49.0 a	39.0 a
Life Expectancy at Birth (year)	69.9 a	67.0 a	66.7 a
Employment-Agriculture (%)	54.9 c	71.7 b	51.7 b
Employment-Manufacturing (%)	13.1 c	3.5 b	10.9 b
Employment-Services (%)	32.0 c	24.8 b	37.4 b

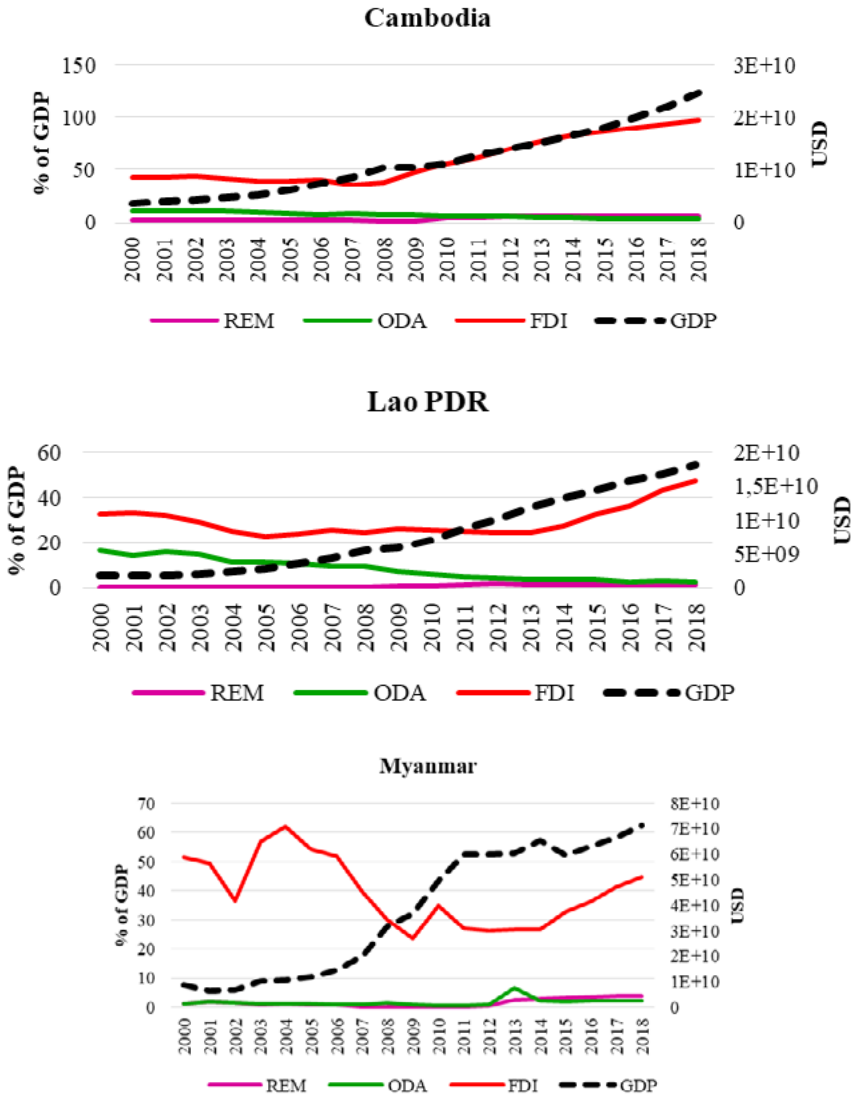
Note: a, b and c denote data in the year 2017, 2016 and 2015, respectively.

Source: World Development Indicators (WDI) and ASEANstats

The foreign capital inflows of the ASEAN's least developed countries are presented in figure 1. For Cambodia, the foreign direct investment (FDI) plays the major role compared to international remittance and official development assistance (ODA). FDI increased from 40 per cent to 97 per cent of GDP during 2000 to 2017. The statistics reveal that China and other ASEAN countries were major investors in Cambodia. Two sources made up 45 per cent of total FDI in Cambodia in 2017. Most of the FDI flew to financial, services and mining industries. The ODA was approximately 8 per cent of GDP over the last two decades. China was also the major donor of ODA. The value of international remittance was around 7 per cent of GDP in the same period. Thailand and the United States accounted for 60 and 20 per cent of Cambodian remittance, respectively.

For the case of Lao PDR, the patterns of foreign capital inflows were similar to Cambodia. Nevertheless, the FDI was approximately only 45 per cent of GDP and China alone accounted for 78 per cent of total FDI in 2017. Most of FDI belonged to electricity and construction industries. The values of ODA and remittance were small. While Japan was the major donor for ODA, Thailand was the major source of remittance (68 per cent in 2017) of Lao PDR. The similar patterns of foreign capital inflows were found for Myanmar. The average of FDI during 2000 to 2017 was 40 per cent of GDP. Most of FDI came from the other ASEAN member states (60 per cent of total FDI in 2017). Mining and quarrying industries were the major industries for FDI. While Thailand was also the major source of remittance (54 per cent of total remittance in 2017), Japan was the biggest donor of ODA (28 per cent of total ODA) of Myanmar.

Figure 1. Foreign capital inflows and GDP



Note: REM, ODA, FDI and GDP denote personal remittances received, net official development assistance received, stock of foreign direct investment and gross domestic, respectively.

Source: World Development Indicators (WDI) and UNCTADstat

3. Literature review

The related literature pertaining the influence of inflows of foreign capital on economic growth might be explained in three categories, based on the type of capital, as the followings.

First, foreign direct investment or FDI: on a theoretical point of view, according to the neoclassical growth theory, FDI may affect economic growth through either

capital accumulation of the economy or technology transfer (Lucas, 1988; Barro, 1991). Alternatively, the dependency theory asserts that FDI from developed country may lower economic growth of developing country through exploitation of resources (Fan, 2002; Khan, 2007). The existing empirical studies also reveal the mixed results. While the positive impact of FDI on growth of developing countries were found by Driffield and Jones (2013), Herzer et al. (2008) presented the insignificant effect of FDI in 28 developing nations, in both short and long run perspective. In contrast, FDI reduced economic growth of 50 African economies during 1980 to 1994 (Gui-Diby, 2014). For the case of ASEAN's least developed countries, the positive effects of FDI on economic growth were found in Cambodia (Sothan, 2017; Sokang, 2018) and Lao PDR (Wattanakul and Watchalaanun, 2017; Khamphengvong et al., 2017; Srithilat et al., 2018). Nonetheless, Anitta (2013) reported that FDI in mining sector reduced GDP of Lao PDR by 0.19 per cent during 1990 to 2011. The impact of FDI on Myanmar's GDP has never been investigated.

Second, international remittance (REM): the remittance may promote economic growth through the processes of capital accumulation. Three mechanisms have been mentioned as follows. While Barajas et al. (2009) suggested that remittance increases availability of funds for investment, Imai et al. (2011) proposed that remittance lowers investment risk premium. Additionally, Jawaid and Saleem (2017) argued that remittance stimulates economic growth through productivity improvement in financial industry. However, the remittance may reduce economic growth in two ways: income effect (Barajas et al., 2009) and the Dutch disease (Amuedo-Dorantes and Pozo, 2004). The income effect emanated from the decrease of labour force in production function as labour enjoys more consumption and leisure from increase in remittance. Regarding the Dutch disease, the inflow of remittance leads to appreciation of domestic currency. This reduces export and economic growth, therefore. The existing empirical studies also display the ambiguous results. While Giuliano and RuizArranz (2009) claimed that the remittance promoted economic growth of 100 countries between 1975 and 2002, Ahortor and Adenutsi (2009) found that it reduced economic growth of the Caribbean countries and also the countries in Sub-Saharan Africa and Latin America. For the case of ASEAN's least developed countries, the positive contribution of remittance on economic growth was reported in Cambodia and Myanmar (Woraphand, 2015). Nevertheless, Taguchi and Lar (2017) found the negative effect in their study, using panel data of Cambodia, Lao PDR, Myanmar, and Vietnam during 1984 and 2015.

Third, official development assistance (ODA): the impact of ODA on economic growth is still controversial. It increases availability of funds for investment (Chenery and Strout, 1966). It contributed to economic growth of Kenya (Ojiambo et al., 2015) and Ethiopia (Girma, 2015). In contrast, insufficient capacity to utilize ODA reduced economic growth of Bangladesh (Hossain, 2014). Nonetheless, Nyoni and Bonga (2017) reviewed 33 existing works which covered 100 countries. They reported the ambiguous effect of ODA on economic growth in both theoretical and empirical aspects. However, the empirical findings tended to show the positive contribution of the ODA. For the case of ASEAN's least developed countries, while Souvannaeth (2014) found that

ODA contributed to GDP of Lao PDR by 3.02 per cent between 1985 and 2012, Moolio and Kong (2016) also reported the positive effect of ODA using panel data analysis for Cambodia, Laos, Myanmar, and Vietnam during 1997 and 2014.

According to the above literature review, it is worth mentioning three points. First, the effects of inflows of foreign capital on economic growth of the recipient country are ambiguous. Second, the existing works mostly scrutinize the effect of a single type of foreign capital inflow on economic growth. This may create an omitted variable bias in the estimation. Third, the study on the case of ASEAN's least developed countries is insufficient. Consequently, our paper contributes to the existing works in that we examine the effect of foreign capital flows on economic growth of each ASEAN's least developed countries individually and all three foreign capital variables are incorporated into the regression simultaneously.

4. Methodology

4.1. The model

The theoretical framework in our study is based on the neoclassical growth model (Solow, 1956, 1957). The Cobb Douglas production function is expressed as equation (1).

$$Y_t = A_t K_t^\theta L_t^{(1-\theta)} \quad (1)$$

where Y is output of the economy and A, K and L represent technology, stock of capital and labor force, respectively. Foreign capital inflows are incorporated into the model through capital stock (Drifeld and Jones, 2013; Gutema, 2018) as in equation (2).

$$K_t = \vartheta REM_t^\beta FDI_t^\delta ODA_t^\delta KOT_t^\theta \quad (2)$$

Accordingly, capital stock of economy is a function of foreign direct investment (FDI), remittance (REM), official development assistance (ODA) and other capital (KOT). Define $y_t = \ln Y_t$ the log form of equation (1) and (2) is stated as equation (3), where gdp_t is gross domestic product.

$$gdp_t = \beta_0 + \beta_1 rem_t + \beta_2 fdi_t + \beta_3 oda_t + \beta_4 kot_t + \beta_5 lab_t + \varepsilon_t \quad (3)$$

The β_1 to β_5 are expected to give positive values. The autoregressive distributed lag (ARDL) model (Pesaran et al., 2001), equation (4), is employed for empirical estimation since it possesses two major advantages. It produces reliable estimation results under limited sample size (Toda, 1994) and it is still valid with different degree of cointegration of estimating variable; I(0) or I(1) variable.

$$\begin{aligned} \Delta gdp_t = & \alpha + \sum_{i=1}^a \beta_1 \Delta gdp_{t-i} + \sum_{i=1}^b \gamma_1 \Delta rem_{t-i} + \sum_{i=1}^c \delta_1 \Delta fdi_{t-i} \\ & + \sum_{i=1}^d \eta_1 \Delta oda_{t-i} + \sum_{i=1}^e \xi_1 \Delta kot_{t-i} + \sum_{i=1}^f \rho_1 \Delta lab_{t-i} + \lambda gdp_{t-i} + \theta rem_{t-i} \\ & + \pi fdi_{t-i} + \psi oda_{t-i} + \omega kot_{t-i} + \chi lab_{t-i} + \varepsilon_t \end{aligned} \quad (4)$$

The Δ denotes the first difference and represents short run characteristic of the model. Term a to f are optimal lag lengths. The coefficients of one lag variables ($\lambda, \theta, \pi, \psi, \omega, \chi$) represent long run multipliers.

Accordingly, the long run coefficients can be estimated by assigning all short run variables equal to zero. Consequently, the long run coefficients are obtained from equation (5).

$$gdp_t = \varnothing_0 + \varnothing_1 rem_t + \varnothing_2 fdi_t + \varnothing_3 oda_t + \varnothing_4 kot_t + \varnothing_5 lab_t + \varepsilon^t \quad (5)$$

The long run coefficients (are estimated using $\varnothing_0 = -\frac{\alpha}{\lambda}$, $\varnothing_1 = -\frac{\theta}{\lambda}$, $\varnothing_2 = -\frac{\pi}{\lambda}$, $\varnothing_3 = -\frac{\psi}{\lambda}$, $\varnothing_4 = -\frac{\omega}{\lambda}$, and $\varnothing_5 = -\frac{\chi}{\lambda}$.

Based on the long run coefficients from equation (5), equation (4) could be transformed to equation (6) to obtain the short run coefficients.

$$\begin{aligned} \Delta gdp_t = & \alpha + \sum_{i=1}^a \beta_1 \Delta gdp_{t-i} + \sum_{i=1}^b \gamma_1 \Delta rem_{t-i} + \sum_{i=1}^c \delta_1 \Delta fdi_{t-i} + \sum_{i=1}^d \eta_1 \Delta oda_{t-i} + \sum_{i=1}^e \xi_1 \Delta kot_{t-i} \\ & + \sum_{i=1}^f \rho_1 \Delta lab_{t-i} + \varphi ECM_{t-1} + \varepsilon_t \end{aligned} \quad (6)$$

The short run coefficients are $\beta_1, \gamma_1, \delta_1, \eta_1, \xi_1$ and ρ_1 . While ECM_{t-1} is error correction term, the represents speed of adjustment of disequilibrium in the short run toward the long run equilibrium.

4.2. Data

The annual data (1980-2017) are employed in our estimations. The real GDP per capita (USD at 2010 constant prices) is used to represent economic growth (gdp). The data are obtained from the World Development Indicators (WDI). To obtain real variables, the remittance (rem, million USD), net official development assistance received (oda, million USD), foreign direct investment (fdi, million USD) and other capital or kot (represented by gross capital formation, in million USD) are divided by gross domestic product (GDP, million USD). While the data of rem, oda, kot and GDP are obtained from WDI database, fdi data come from the United Nations Conference on Trade and Development database (UNCTADstat). The number of persons engaged (million persons) that is divided by number of population (million persons) is used to represent labor force (lab). The data of number of persons engaged are derived from the Penn World Table (9.0) and the population are obtained from WDI database.

5. Estimation results

5.1. Unit root test

The ADF or Augmented Dickey-Fuller test is conducted to check the degree of cointegration of variable since the ARDL model is not applicable if the estimations contain the cointegrated of order two, I(2), variable. The results in table 3 exhibit that the I(2) variable is not detected in our works.

Table 3. Augmented Dickey-Fuller unit root test

Variable	Level form		First difference form		I(n)
	t-stat	Prob.	t-stat	Prob.	
Cambodia					
gdp	-1.583	0.777	-5.148	0.001	I(1)
rem	-2.562	0.299	-6.647	0.000	I(1)
fdi	-3.807	0.028			I(0)
oda	-2.604	0.281	-4.007	0.021	I(1)
kot	-0.842	0.952	-5.715	0.000	I(1)
lab	-2.021	0.571	-5.346	0.001	I(1)
Lao PDR					
gdp	-1.026	0.928	-7.230	0.000	I(1)
rem	-1.398	0.845	-6.596	0.000	I(1)
fdi	-6.047	0.000			I(0)
oda	-0.797	0.957	-5.226	0.001	I(1)
kot	-4.250	0.009			I(0)
lab	-1.228	0.890	-7.520	0.000	I(1)
Myanmar					
gdp	-1.606	0.771	-3.413	0.065	I(1)
rem	-2.592	0.286	-6.173	0.000	I(1)
fdi	-1.407	0.841	-3.533	0.051	I(1)
oda	-2.250	0.450	-4.485	0.006	I(1)
kot	0.142	0.997	-4.451	0.006	I(1)
lab	-7.880	0.000			I(0)

Note: I(n) stands for integrated of order n variable

5.2. The ARDL bounds test

The bounds test is adopted to examine long run cointegrations among the studied variables, using equation (4).

Table 4. The bounds test

Calculated F-statistic	
Cambodia	5.027**
Laos	7.375***
Myanmar	7.419***
Critical F-statistic	

Lower bound	Upper bound	Significance level
2.879	4.114	10 %
3.426	4.790	5 %
4.704	6.537	1 %

Note: The ***, **, * indicate level of significance at 1%, 5% and 10%, respectively.

According to the bounds test, if the calculated F-statistic stays below the lower bound critical value, it implies that the cointegration relationships among studied variables do not present. The results in table 4 reveal that the cointegration properties are present in all three countries since the calculated F-statistics are bigger than the critical F-statistics, at 5 per cent significance level.

5.3. The estimating coefficients

The existence of cointegration relationships enables us to estimate for both long run and short run influences of foreign capital flows on economic growth of each country, as exhibit in table 5 and table 6, respectively.

According to table 5, the international remittance shows the mixed effects in the short run. While the remittance promotes economic growth of Lao PDR and Myanmar, it creates negative effect in Cambodia. The mixed effects are also found for the impact of ODA. While the ODA contributes to economic growth of Cambodia and Lao PDR, its positive effect changes to negative effect in the case of Myanmar. Nonetheless, the FDI raises the GDP of all three countries in the short run.

Table 5. The short run coefficients

Cambodia		Lao PDR		Myanmar	
Variable	Coefficient	Variable	Coefficient	Variable	Coefficient
Δgdp_{t-1}	0.430** (2.709)	Δgdp_{t-1}	0.270*** (3.239)	Δgdp_{t-1}	-0.277 (-1.245)
Δgdp_{t-2}	-0.292 (-1.364)	Δrem_t	0.008 (1.766)	Δgdp_{t-2}	0.344*** (2.806)
Δrem_t	-0.009** (-2.362)	Δrem_{t-1}	0.000 (0.111)	Δrem_t	0.004** (2.429)
Δfdi_t	0.032*** (3.700)	Δrem_{t-2}	0.007* (1.826)	Δfdi_t	0.000 (0.071)
Δoda_t	-0.001 (-0.122)	Δfdi_t	0.015 (1.592)	Δfdi_{t-1}	0.016** (2.123)
Δoda_{t-1}	0.004 (0.621)	Δfdi_{t-1}	0.010 (1.075)	Δoda_t	-0.006*** (-3.047)
Δoda_{t-2}	0.023*** (3.653)	Δfdi_{t-2}	0.026* (1.929)	Δoda_{t-1}	0.005*** (2.911)

Cambodia		Lao PDR		Myanmar	
Variable	Coefficient	Variable	Coefficient	Variable	Coefficient
Δkot_t	0.062*** (2.818)	Δoda_t	0.104*** (4.480)	Δkot_t	0.010 (0.354)
Δlab_t	-0.876*** (-9.653)	Δkot_t	-1.109 (-0.993)	Δlab_t	-0.991 (-1.087)
Δlab_{t-1}	0.693** (2.365)	Δlab_t	4.054** (2.586)	Δlab_{t-1}	0.002 (0.011)
Δlab_{t-2}	-0.335 (-1.540)	Δlab_{t-1}	-1.157 (-1.213)	Δlab_{t-2}	0.344*** (2.817)
		Δlab_{t-2}	3.886*** (3.640)		

Note: The ***, **, * indicate level of significance at 1%, 5% and 10%, respectively. t-statistics are presented in parentheses.

Table 6. The long run coefficients

Variable	Cambodia	Lao PDR	Myanmar
<i>rem</i>	-0.029 (-1.621)	0.007 (1.143)	0.006* (1.916)
<i>fdi</i>	0.104** (2.818)	0.054** (2.736)	0.019*** (4.337)
<i>oda</i>	0.067*** (3.845)	0.190*** (6.408)	-0.022 (-1.523)
<i>kot</i>	0.202** (2.771)	0.807 (1.091)	0.015 (0.389)
<i>lab</i>	-0.362 (-1.107)	0.657*** (7.455)	0.904*** (5.827)

Note: The ***, **, * indicate level of significance at 1%, 5% and 10%, respectively. t-statistics are presented in parentheses.

Based on table 6, the short run effects of international remittance in Cambodia and Lao PDR become insignificant in the long run. This indicates that remittance is not allocated for investment properly. The statistics in 2017 revealed that household consumption accounted for 76 and 64 per cent of GDP composition of Cambodia and Lao PDR, respectively. Therefore, it is high likely that the remittance was allocated for consumption rather than investment, implying that the income effect plays an important role in Cambodia and Lao PDR. Its short run positive impact remains in the long run for Myanmar. A 1 per cent increase in remittance spurs economic growth of Myanmar by 0.006 per cent. The magnitude of our estimating coefficient is much smaller than the finding of Woraphand (2015) who claimed that remittance stimulated economic growth of Myanmar by 0.39 per cent. In addition, while Imai et. al. (2011) reported

the positive impact of remittance on economic growth of Lao PDR, our finding shows that the effect is insignificant. These different findings indicate that the omitted variable bias problem is improved in our works.

The short run positive impact of FDI still remains in the long run in all three countries. Even though our findings are in line with the exiting works, the magnitude of the impact is significantly smaller. For instance, while Anitta (2013) claimed that a 1 per cent increase in FDI stimulates economic growth of Lao PDR by 1.29 per cent, our empirical finding shows only 0.05 per cent.

The short run contributions of ODA on economic growth of Cambodia and Lao PDR also stay in the long run. While Souvannaeth (2014) reported that the long run effect of ODA on economic growth of Lao PDR is 3.02 per cent, it is 0.19 per cent in our finding. For Myanmar, while Moolio and Kong (2016) claimed that ODA contributes to GDP growth, using panel data analysis of three Southeast Asian least developed countries together with Vietnam, the finding from ARDL model of our study indicates insignificant effect of ODA on Myanmar economic growth. The insignificant impact of ODA in Myanmar could connect to the significantly low degree of absorptive capacity of the country, given that Myanmar has long been closed from the outside world by the military junta.

A 1 per cent rise in other form of capital stimulates economic growth of Cambodia by 0.20 per cent. However, it shows no impact in Lao PDR and Myanmar. In contrast, while an increase in labour force does not give significant effect on economic growth of Cambodia, it contributes to economic growth of Lao PDR and Myanmar by 0.66 and 0.90 per cent, respectively.

5.4. Diagnostic tests of the model

The validity of our studied ARDL model is checked using various diagnostic tests. The speed of adjustments are lower than one, in absolute value, in all three countries. Their negative values are statistically significant. These indicate that short run disequilibrium are adjusted toward long run equilibrium in all models. The LM statistics from Breusch-Godfrey LM tests are insignificant at one degree of freedom. These imply that the residual in all estimating models are free from autocorrelation problem. The chi-square statistics from Ramsey's RESET are insignificant which indicate that our models are specified correctly. The values of F are 0.61, 0.69 and 0.79 in Cambodia, Laos and Myanmar, respectively.

Table 7. Diagnostic statistics of the ARDL model

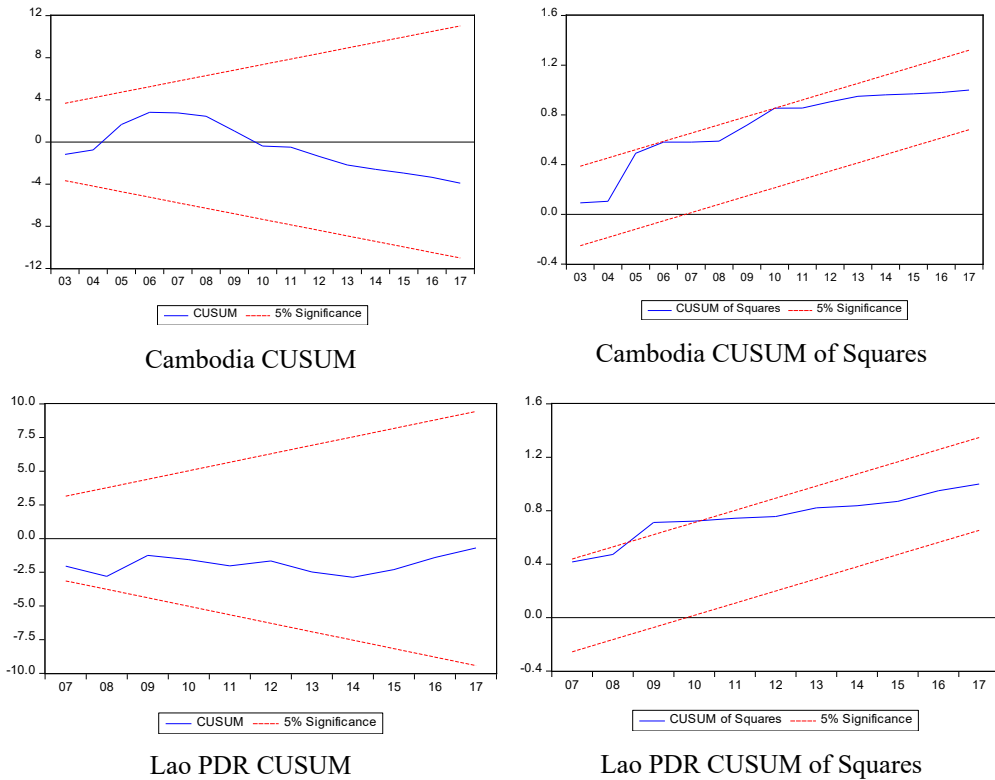
Test	Cambodia	Lao PDR	Myanmar
ECM_{t-1}	-0.306*** (0.000)	-0.990*** (0.000)	-0.688*** (0.000)
R^2	0.614	0.699	0.798

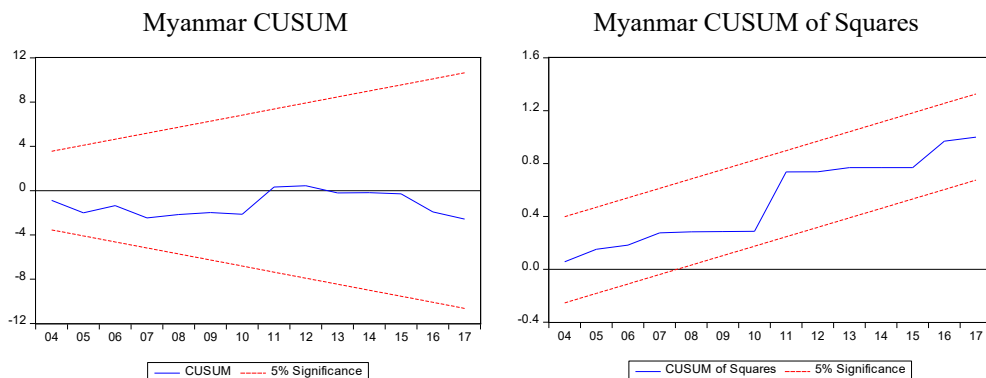
Test	Cambodia	Lao PDR	Myanmar
LM test	0.642 (0.436)	1.665 (0.226)	0.322 (0.580)
RESET test	2.189 (0.199)	0.445 (0.517)	2.065 (0.176)

Note: The ***, **, * indicate level of significance at 1%, 5% and 10%, respectively. P-values are provided in parentheses.

Finally, the stability of estimating coefficients over time are supported by the graphs from cumulative sum of recursive residuals (CUSUM) together with cumulative sum of squares of recursive residual (CUSUM of Squares) as in figure 2.

Figure 2. Stability of coefficients





5. Conclusions

The economic developments of the least developed countries rely on foreign capital inflows significantly. The existing literature indicates the ambiguous effects of capital inflows on economic growth. In addition, most of the current works observed the effect of a single kind of foreign capital individually which may create biased empirical result due to an omitted variable problem. Accordingly, we scrutinize the impact of foreign capital inflows on Southeast Asian least developed countries: Cambodia, Lao PDR and Myanmar, by including remittance, FDI and ODA in the regression simultaneously. The ARDL model, based on neoclassical growth theory, is employed using annual data between 1980 and 2017.

Our empirical findings reveal that the short run effects of international remittance become insignificant in the long run in Cambodia and Lao PDR, whereas the short run positive impact still remains in the long run for Myanmar. Regarding the impacts of FDI, the short run positive impacts still remain in the long run in all three countries. Nevertheless, the magnitude of estimating coefficients from our study are considerably smaller than the existing works which used a single foreign capital independent variable in the estimation. This indicates that the omitted variable bias problem is improved in our works. Additionally, while the short run contributions of ODA on economic growth of Cambodia and Lao PDR still remain in the long run, the effect becomes insignificant for Myanmar.

The policy implications to improve economic growth using foreign capital inflows could be drawn accordingly. In terms of international remittance, Cambodia and Lao PDR should apply policy to attract remittance to move into investment sector more than to consumption. Regarding official development assistance, Myanmar should improve absorptive capacity to utilize ODA efficiently.

References

- Ahortor, Christian R. K. and Adenutsi, Deodat E., "The Impact of Remittances on Economic Growth in Small-Open Developing Economies", *Journal of Applied Sciences*, 9, 2009.
- Amuedo-Dorantes, Catalina and Pozo, Susan, "Workers' Remittances And The Real Exchange

- Rate: A Paradox of Gifts”, *World Development*, 32(8), 2004.
- Anitta, Phommahaxay, Impact of FDI on economic growth of Lao PDR, Mekong Institute Research Working Paper Series No. 9/2013, 2013.
- Barajas, Adolfo, Michael, T. Gapen , Chami, Ralph, Montie, Peter and Connel, Fullenkampl, “Do Workers’ Remittances Promote Economic Growth?”IMF Working Paper WP/2009/153, International Monetary Fund.
- Barro, Robert J., “Economic Growth in a Cross Section of Countries”, *The Quarterly Journal of Economics*, 106(2), 1991.
- Chenery, Hollis B. and Strout, Alan M., “Foreign Assistance and Economic Development”, *American Economic Review*, 56, 1966.
- Driffield, Nigel and Jones, Chris, “Impact of FDI, ODA and Migrant Remittances on Economic Growth in Developing Countries: A Systems Approach”, *The European Journal of Development Research*, 25(2), 2013.
- Fan, Emma Xiaoqin, Technology Spillovers from Foreign Direct Investment—A Survey Asian Development Bank Working Paper. Manila, Philippines; World Bank, 2002.
- Girma, Haile, “The Impact of Foreign Aid on Economic Growth: Empirical Evidence From Ethiopia (1974-2011) Using ARDL Approach”, *Journal of Research in Economics and International Finance*, 4(1), 2015.
- Giuliano, Paola and Ruiz-Arranzc, Marta, “Remittances, Financial Development and Growth”, *Journal of Development Economics*, 90(1), 2009.
- Gui-Diby, Steve, “Impact of Foreign Direct Investments on Economic Growth in Africa: Evidence from Tree Decades of Panel Data Analyses”, *Research in Economics*, 68, 2014.
- Gutema, Gutu, “The Role of Remittances, FDI and Foreign Aid in Economic Growth in Low and Middle Income African Countries” In Determinants of Economic Growth in Africa, Heshmati, A., Palgrave Macmillan, 2018.
- Herzer, Dierk, Klasen, Stephan and Felicitas Nowak-Lehmann D., “In Search of FDI-Led Growth in Developing Countries: The Way Forward”, *Economic Modelling*, 25(5), 2008.
- Hossain, Basharat, “The Effect of Foreign Aid on The Economic Growth of Bangladesh”, *Journal of Economics and Development Studies*, 2(2), 2014.
- Imai, Katsushi, Gaiha, Raghav, Ali, Abdilahi and Kaicker, Nidhi, Remittances, Growth and Poverty: New Evidence from Asian Countries, The School of Economics Discussion Paper Series 1125, The University of Manchester, 2011.
- Jawaid, Syed Tehseen and Saleem, Shaikh Muhammad, “Foreign Capital Inflows And Economic Growth of Pakistan”, *Journal of Transnational Management*, 22(2), 2017.
- Khamphengvong, Visansack; Xia, Enjun and Srithilat, Khaysy, “The relationship among FDI, trade openness and economic growth: Empirical evidence from lao PDR”, 2017 4th International Conference on Industrial Economics System and Industrial Security Engineering (IEIS), 2017, DOI: 10.1109/IEIS.2017.8078623
- Khan, Muhammad Arshad, Foreign Direct Investment and Economic Growth: The Role of Domestic Financial Sector. PIDE Working Paper No. 2007:18. Pakistan Institute of Development Economics, 2007.
- Lucas, Robert E., “On the Mechanics of Economic Development”, *Journal of Monetary Economics*, 22, 1988.

- Moolio, Pahlaj and Kong, Somphyvatanak, "Foreign Aid and Economic Growth: Panel Cointegration Analysis for Cambodia, Lao PDR, Myanmar, and Vietnam", *Athens Journal of Business & Economics*, 2(4), 2016.
- Nyoni, Thabani and Bonga, Wellington G., "Foreign Aid – Economic Growth Nexus: A Systematic Review of Theory & Evidence from Developing Countries", *Dynamic Research Journals' Journal of Economics & Finance*, 2(7), 2017.
- Ojiambo, Elphas, Oduor, Jacob, Mburu, Tom and Wawire, Nelson, Aid unpredictability and Economic Growth in Kenya, African Development Bank, Working Paper 226, 2015.
- Pesaran, Hashem M., Shin Yongcheol and Smith, Richard J., "Bounds Testing Approaches to the Analysis of Level Relationships", *Journal of Applied Econometrics*, 6(3), 2001.
- Sokang, Khun, "The Impact of Foreign Direct Investment on the Economic Growth in Cambodia: Empirical Evidence", *International Journal of Innovation and Economics Development*, 4(5), 2018.
- Solow, Robert M., "A Contribution to The Theory of Economic Growth", *Quarterly Journal of Economics*, 70(1), 1956.
- Solow, Robert M., "Technical Change and The Aggregate Productions", *Reviews of Economic and Statistics*, 39, 1957.
- Sothan, Seng, "Causality between foreign direct investment and economic growth for Cambodia", *Cogent Economics & Finance*, 5(1), 2017.
- Souvannaeth, Vilaylack, "The Impact of Official Development Assistance on Economic Growth in Lao PDR", Mekong Institute Research Working Paper No. 6/2014, 2014.
- Srithilat, Khaysy; Thavisay, Maketta; Phonasa, Syvanh; Khamphengvong, Visansack and Phavongxay, Salika, "The Impact of Foreign Direct Investment and Trade Openness on Economic Development in Lao PDR", *Journal of Economics and Sustainable Development*, 9(4), 2018.
- Taguchi, Hiroyuki and Lar, Ni, "Emigrant's remittances, Dutch Disease and capital accumulation in Mekong countries", Munich Personal RePEc Archive (MPRA) Paper No. 80637, 2017.
- Toda, Hiro Y., "Finite Sample Properties of Likelihood Ratio Tests for Cointegrating Ranks when Linear Trends Are Present", *Review of Economics & Statistics*, 76(1), 1994.
- Wattanakul, Thanet and Watchalaanun, Tanawat, "The Relationship between Foreign Direct Investment from Thailand and Export on the Economic Growth of Laos", *Australasian Accounting, Business and Finance Journal*, 11(3), 2017.
- Woraphand, Sasiwimol, "Impact of Remittances on Economic Growth in ASEAN Countries", *Research and Development Journal Suan Sunandha Rajabhat University*, 7(1), 2015.

Volume 27 · Number 1 · Winter 2020

Journal Transition Studies Review

Editor: G. Dominese

Co-Editors: W. de Vivanco, B. Cerović, T. Muravska,
M. Florio, S. Miani, Z. Zhao, O. Rogach

PAPERS

*Dual Technologies Sectors Innovation and Growth Civil and Defence Industries
in Europe versus U.S. and China*

Giorgio Dominese

Poverty and Uneven Distribution of Income and Wealth: World and Armenia

Mariam A. Voskanyan

*Public sector accounting in transition:
Changing frameworks and practices among Italian public nursing homes*

Alessandro Lombrano · Silvia Iacuzzi · Andrea Garlatti

*The Realization of the Right to Work in the Republic of Belarus In the Context of International Labour
Standards: Issues and Prospects*

Kirill Tomashevski

Competitiveness of Travel and Tourism Sector in Greece and Ukraine: Comparative Analysis

Konstantia Darvidou · Evangelos Siskos · Oleksandr Rogach

Panda bonds: opportunity or threat for Europe?

Patrizia Stucchi

Fintech revolution in transition countries – remittances and mobile money

Cristina Prochazkova Ilinitchi

Economic Transition in Algeria: A Review

Abdelkader Nouibat

OPINIONS

Ménage à trois

Fernando Ayala

Rules for Authors of *Journal of Transition Studies Review* are available at www.transitionacademiapress.org



Transition Academia Press
www.transitionacademiapress.org

ISSN Print Edition 1614-4007

ISSN e-Journal 1614-4015

Is China's Financial Sector Reform the Answer to Economic Globalisation?

Lucia Morales* • Bernadette Andreosso-O'Callaghan**

Abstract The Chinese banking system is of interest to the analysts and scholars who seek to understand whether China's financial reforms are susceptible to contribute to the needed conditions that support fast economic growth and development. Before the Global Financial Crisis, China's economy was growing rapidly, and the country has now embarked upon a "*new normal economic model*." This entails a greater development scope for China's financial system. "*The Big Four*" Chinese commercial banks remain under the control and surveillance of the central government, a situation that raises significant criticisms among those who support banking deregulation, liberalisation and efficiency. However, China has shown that it was relatively prepared to manage two major crises – the Asian Economic and Financial Crisis, and the Global Financial Crisis – and that the close monitoring of its financial system should not be too easily dismissed. The main findings from this study highlight that the "*Big Four*" do not seem to be impacted upon by regional or global uncertainty, but that causal dynamics exist between Chinese top banks and regional market uncertainty, a phenomenon that needs to be carefully considered by policy makers.

Keywords: "The Big Four"; Financial Reform; Economic and Policy Uncertainty; Market Models; Dynamic Causality.

JEL Classification: F36; G15; G18

Introduction

In November 2013, with the 18th Party Congress Third Plenum Decision, the Party's Central Committee called for significant reforms in favour of changes to its economic model towards a more decisive role played by market forces. With its ongoing economic reforms since the late 1970s, the Chinese economic model has evolved over the years from being a centrally planned economy to allowing market forces to play some significant role. When compared to the rest of the world economies,

Lucia Morales*(✉), Bernadette Andreosso-O'Callaghan**

TU Dublin, Ireland

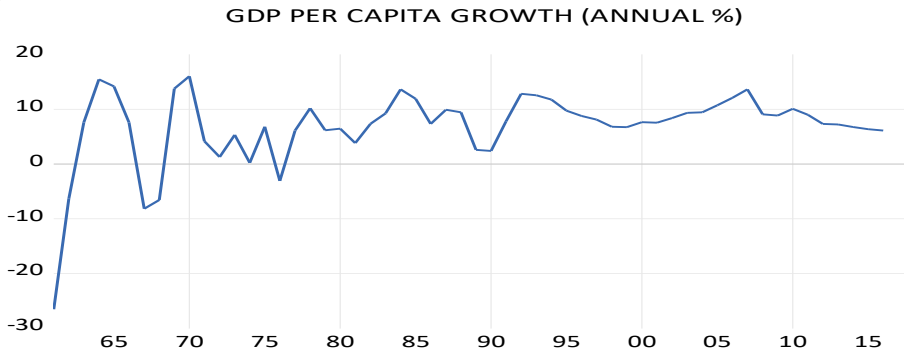
e-mail : lucia.morales@TUDublin.ie

**University of Limerick, Ireland

e-mail : Bernadette.Andreosso@ul.ie

China's economy has grown rapidly for several decades (see figure 1 below) and it has shown an extraordinary resilience to regional and international shocks. Chinese leaders have played a major starring role in the country's performance and the planning system has outlined a very ambitious agenda for the years to come. Efforts have been made to seek for substantial financial reforms that aim to support its growth strategy, a strategy that has lately been supported by the encouragement of domestic demand and innovation, and more engagement with regional economies in the context of a more equitable and environmentally friendly economy (Min, et al., 2018).

Figure 1: China's GDP Growth Rate



*Source: DataStream (2018)

As the country progressed with its reforms, the Global Financial Crisis hit the world economies and acted as a breakpoint for China. The country's growth rates slowed down, and new macroeconomic policies needed to be implemented to guide the economy towards a more active investment approach that helped to stabilise and keep high levels of growth. Chinese authorities realised that double digit growth rates might have come to an end, and that the country's economic performance has transitioned towards a "new normal" economic growth state. But, at the centre of the needed reforms, we find an archaic financial system, a system that is entrenched, rigid and heavily dominated and monitored by the government. China's financial institutions are heavily controlled by the state that, with continuous intervention, creates structural inertia hampering the well-functioning of its financial system where the banking sector plays a prominent role. Some relevant facts to be considered are: a) the state-owned banks have control of almost 60 percent of the country's banking sector assets, b) and state-owned enterprises account for more than 90 percent of the capital raised in China's corporate bond market. These facts offer a clear picture of the dominant role played by the state in the Chinese financial system. Consequently, in this study we examine whether the banking sector has managed to increase its level of resilience to uncertainty by analysing China's four top listed banks known as "the Big Four"; this is done in the context of two market models and spectral (dynamic) causality that seek to understand if China's Economic and Political uncertainty are a driver of uncertainty to the country's banking sector. Global market and regional economic and

political uncertainty are also considered by developing an empirical framework that integrates four indexes that proxy for market and economic policy uncertainty: i) the Chinese Economic Policy Uncertainty index (EPUi); ii) the World's Economic Policy Uncertainty index (Global EPUi); iii) the Hang Seng Volatility Index (HSI Vix); iv) and the VIX index are integrated as part of this study, with the aim of understanding if the "Big Four" are showing resilient features to global and domestic uncertainty, in the context of statistic and dynamic causality modelling that allows to examine the banks performance.

Research Motivation

The study seeks to examine the following issues: i) what is the role of the financial system in the shaping of a strong economic model? and ii) why is China in dare need of introducing changes to its financial system? An initial issue to consider is that financial institutions play a core role in a country's economic success, as they facilitate investment that yields higher levels of productivity and foster innovation that contributes to economic growth, development and that raises living standards. A second issue of interest can be found in the role of financial institutions when determining the quantity and quality of investment. They facilitate the collection of savings and the selection of projects in which to invest those savings. The financial system is responsible for the provision of corporate governance and the legal systems make sure that those investments are used in an effective manner. Therefore, financial institutions can be considered as the conduit for quality investment, as through them, financial resources are collected and administered to select optimal projects where to allocate scarce financial resources in an efficient manner. Moreover, they provide the channels and a legal framework that guarantee the effective use of financial resources. Without doubt, the Chinese authorities are facing many challenges when looking at the reform of their financial system. Without significant reforms, China's rigid financial system will remain trapped in a cycle of inefficient investment and rising inequality, as China's financial markets remain remarkably underdeveloped by international standards (Nazmi, 2006; Min et al, 2018; Paulet and Relano, 2018). Another aspect that needs attention relates to the state intervention and controls on financial flows that can undermine the country's ability to become a competitive international player with sound governance rules and guidelines.

This paper offers first a brief overview of China's financial system that will help position the study. As such, it is of interest to explore the Chinese financial system and how its financial structure has evolved to identify the kind of challenges that economic and financial authorities are facing as they look to implement much-needed reforms. There is no argument around China's needs to transform its underdeveloped financial system into a competitive one that aligns with international standards. However, we also need to remember that China's financial system managed to remain stronger during the GFC, while the world's most developed economies were submerged in a deep recessionary period that shambled their financial system. Then, it is important to consider that China might not be interested in developing a model that mimics those

of Western economies; rather, it aspires at borrowing key aspects that can strengthen its model whilst safeguarding other aspects of its “*traditional model*”; this is a lengthy process as the country needs to find its own way around existing models, until it finds the one that suits and supports its economy and political ideology.

A Brief Overview of China's Financial System and its Major Challenges

Over the years, researchers have been intrigued by China's economic growth that has been subject to many studies trying to decipher the country's ability to keep a consistent and rapid performance for more than a quarter of a century, since the economic reforms started in 1978, with important changes made in the banking sector (Yao et al., 2006; Zhang and Daly, 2011; Tan, 2014; Shen et al., 2009; Kobil and Dow, 2013; Min et al, 2018). The reforms sought a transition from a centralised, state-owned, monopolistic and policy driven approach to a model that shared some characteristics of well-developed banking systems that are decentralised, have multi-ownership, that are competitive and profit-oriented systems (Nazmi, 2006; Tan, 2014). Quite generally, China's financial system has been perceived as a weak system on the verge of collapse. The situation is quite different today, as the Global Financial Crisis showed how industrial countries' financial systems were badly affected, - systems that were considered to be efficient -; these liberalised and deregulated systems were met with severe liquidity problems, with major failures in terms of corporate governance, and with a serious inability to cope with global market demands. On the other hand, China managed to fend off strong external turbulences and the Chinese authorities were able to use their banking system to act as a key tool for the implementation of the largest fiscal stimulus package in the country's history (García-Herrero and Santabárbara, 2013). China's resilience to the global turmoil can be explained by its relative external isolation of its financial sector and by strong public intervention in credit allocation, along with lax monetary and fiscal policies. The typical criticism of an underdeveloped financial system in China helped to shield the country from the global mayhem. However, caution is needed, as the limited impact of the GFC on China's financial system should not lead towards the perception that its financial reforms have been sufficient. China needs to progress further with its efforts to reform its financial system and it should start by looking at the banking sector, as historically, Chinese banks have been used as the primary source of finance for state-owned companies and local governments (Dorrucci et al., 2009). While the banking system has become bigger and sounder in terms of solvency and asset quality, there is still a high degree of public intervention in credit allocation and of instances of financial repression that lead to a severe disruption in terms of competitive levels.

Timeline of China's Main Reforms to its Banking System

The Chinese authorities' main efforts to reform the country's financial system can be summarised as follows.

- In the late 1970s, the People's Bank of China (PBC) dominated the sector that

was considered a mono-bank banking system, and the PBC acted as a central bank and also as a commercial bank.

- During the 1980s, the PBC remained in charge of the country's monetary policy and also of its banking regulation. However, at that time, the Chinese authorities decided to separate the central bank and commercial bank functions. To achieve their objective, four state-owned commercial banks (SOCBS) were created, and at the same time smaller financial institutions were also settled and their operations were limited to the local and regional level.
- In the early 1990s, the Shanghai and the Shenzhen stock exchanges were re-established allowing China to open its doors to a capital market. However, at this time the country started to face problems with regard to non-performing loans (NPLs), as the creation of three policy banks continued to accumulate NPLs as bank lending was growing significantly without appropriate assessment of the underlying risks. The main role of the banks was to provide funds to state-owned enterprises (SOEs) without conducting assessments on their repayment capabilities as the state acted as a guarantor of last resort. As a result, and during the 1990s, China experienced a sharp reduction in economic growth in the wake of the Asian Crisis that can be associated with the rapid increase of non-performing loans. In 1998, the PBC started a multi-year restructuring process that aimed to clean up its banking system.
- The year 2000 witnessed the introduction of the reform process of banks and SOEs with the transfer of massive amounts of NPLs to newly created Asset Management Corporations. At least 2.5 trillion yuan (about \$300 billion) or 31 percent of China's GDP at the time were transferred from the banks' balance sheets to the newly created corporations.
- In 2003, a new institution was created – The China Banking Regulatory Commission (CBRC). CBRC was tasked to deal with the financial supervision and regulation of the financial system and it was in charge of continuing with the country's ambitious financial reform.
- Between 2003 and 2010, the China's commercial banking sector experienced rapid growth that led to its structural diversification.
- From 2013 onwards, the country was left with a dangerous legacy of non-performing loans (NPLs). Structural reforms were introduced with the aim of reducing huge loads of NPLs from the balance sheets of the "Big Four". At the same time, China's embraced the guidelines outlined by the Basel III Accord by introducing domestic rules and regulations that were stricter than those considered at the international level. The Basel Committee gave Chinese regulators the best possible overall grade of compliance, as China committed to tighter implementation of the Basel III schedule; this is perceived as a positive reform and as a commitment from the part of regulators to enhance and improve the sector's surveillance mechanisms.

In sum, China's vision to its financial system revolves around the introduction of prudential banking regulation that is far stricter than the standards settled at

international level, and the Chinese authorities are very committed to it, to the point that they are moving faster than anybody else on the implementation of the Basel III recommendations and that they are going much further than required. However, there are significant aspects that still need to be considered: i) Chinese banks have been shielded and instructed by their government for years, a strategy that has undermined their international competitive position, and that has created massive amounts of NPLs. ii) China's economic growth and the risks associated with its rooted socialist economy and its sustainability are driving the political discourse in a country that seeks to reform its financial system without losing control of its top banks.

As China becomes a new powerful global economic player - in a context of global ambiguity, led by the indecisive economic and political game played by the new US administration - there is a need of examining its financial system and its stability in terms of global and domestic uncertainty. While the Chinese financial sector appears to exhibit signs of stability, there is remarkable inner-party opposition as the central leadership tries to commit to further internationalisation (Andreosso-O'Callaghan and Gottwald, 2014). Strong political control from Beijing and vested interests are aspects that bring serious challenges and concerns to the government's efforts to introduce further reforms that contribute to China's aspirations of becoming a global and market-oriented economy (García-Herrero and Santabábara, 2013; Andreosso-O'Callaghan, 2013). Economic reforms introduced in the 1980s and 1990s helped the country to achieve fast economic growth; however, the foundations of the model that is heavily reliant on exports has sacrificed productive efficiency that, with the outburst of the Global Financial Crisis, has led to significant questioning of its efficiency and sustainability among the political class. China's export-led growth model was heavily sustained by under-priced production factors and it has become obsolete (Fabre, 2013), opening the door to the development of the real estate and financial sectors that have taken momentum. The country is shifting from an economic model that relied heavily on its exports and on a foreign investment-led approach towards a model where the services sector appears to be taking central stage. In this regard, the need for liberalising and making more competitive the financial sector is an aspect that needs to be examined carefully, due to the critical role of financial services when supporting economic growth and development. This is particularly the case when sustainable economic growth is linked to the development of financial services that act as a stimulator to economic progress.

What are the Main Challenges Faced by the Chinese Banking System?

China's economic expansion and aspirations to become a major global economic player need to be supported by an agile, responsive and responsible banking system that is capable of keeping money flowing throughout its economy. Failing to introduce the needed changes will lead to severe financial implications with far reaching consequences at both the regional and global level in the long term. The Chinese authorities need to find a way of modelling their financial system that contributes to the country's economic development levels that align with those achieved by economic superpowers of the size

of the US, Japan and the EU. But to be able to compete at international level, China's financial industry needs to consider the commercial and the shadow banking sector, as neglecting the needed changes can lead to a trade-off between short term growth for a long-term financial sector that is not able to respond to the country's needs (Lu et al., 2015). But, is China doing enough to prepare itself to regional and global economic challenges? This is a key question that needs to be answered.

Firstly, China needs to push reforms that minimise the role of the state-owned banks that have historically acted as a conduit to channel financial capital into government run projects that are heavily represented by state-owned enterprises (SOEs) and where the Chinese government should reduce its market intervention and create incentives that facilitate free-market forces to identify the efficient allocation of capital.

China's banking industry is concentrated around the "Big Four" that are responsible for almost 50 to 60 percent of all China's loans. As such, the banking sector is shaped around an oligopoly that creates significant market distortions as it does not allow for competition between foreign and domestic banks as the sector remains privately owned.

The efficiency and effectiveness of the banking industry is significantly obstructed, as less profitable banks are blooming by issuing loans to uncompetitive and poorly managed SOEs that end up harming the country's economic potential.

Interest rates are also an area of concern, as China's central bank – the People's Bank of China (PBOC) - exercises continuous control on interest rates. While some efforts have been made to relax interest rate restrictions, such as having variable interest rates for deposits, full interest rate liberalisation remains a dream objective to be achieved.

Moody's estimates of China's shadow banking industry is around \$8.5trillion, raising serious concerns, as this unregulated activity could lead to a financial meltdown if a loan default or a third party must suddenly come up with money to guarantee debts.

Chinese policy makers are aware of the problems and risks associated with shadow banking, as recognised by President Xi Jinping in October 2013: "*... we are soberly aware of potential problems and challenges from falling demand, overcapacity, local debts and shadow banking, and we are paying close attention to possible impacts coming from the outside.*" Authorities have taken some steps in the right direction, for example, President Xi Jinping appointed Guo Shuqing as CBRC chairman in 2016, a highly regarded technocrat that has been quite aggressive by instituting new rules and regulations in the country's banking industry. The China Banking Regulator Commission is trying to place controls and develop regulations on shadow banking, that try to determine if banks have been using shadow banking products in order to cover up loans to money-losing "*zombie firms*" or businesses in government restricted industries (Hsu, 2016; Lu et al., 2015; Tan, 2014). Stricter lending standards have been introduced, monthly lending ceilings are imposed as also disclosure requirements regarding off-balance sheet assets, but are the introduced changes enough? Some analysts consider that China's biggest challenge to keep growing at sustainable rates are significantly tied to the country's banking system and the introduction of policies that help liberalise the sector in a context where the central government keeps insisting

on maintaining an authoritarian control on top banks leads to some suspicion. The oligopolistic structure of the banking sector contributes to enhance market distortions and does not allow for open competition from private banks. As the Big Four control about half the loans in the country, there is a dominance of the State on the banking sector that leads to less profitable and efficient activities in the country (Jiang et al., 2013; Wong and Wong, 2001). China's banking sector has important elements in place, such as for example: the mechanisms to carry out monetary policy are well developed, and many interest rates controls have been lifted. Monetary policy is smoothly carried out by the central bank through quantitative measures such as required reserve ratios, opening market operations, central bank lending and rediscount mechanism and to some extent through the price mechanism and through administrative policies. The findings by Fernald et al., (2014) indicate that China's monetary policy transmission channels, particularly interest rates, are moving closer to those of Western economies. On the other hand, changes seeking to improve price-based monetary policy are needed, as the creation of short-term interest rates to guide expectations. There are over 3,500 banking institutions outside the Big Four within China's financial system, including, policy banks, joint-stock commercial banks, city commercial banks, rural commercial banks, rural cooperative banks, rural credit cooperatives, village and township banks, foreign banks, and others. Around 120 types of interest rates were reformed between 1996 and 2007 signalling clear efforts to update and modernise the structure and functioning of China's financial system (Huang et al., 2013; Hsu, 2016).

Chinese Banking System Weaknesses

China's banking system was able to survive the international financial crisis; however, the introduced reforms do not seem to be sufficient to deal with the challenges of globalisation and with very competitive markets, as there is a strong continuation of excessive control and intervention that, when combined with weak corporate governance, highlights significant challenges ahead. Public ownership is hindering the establishment and development of a commercially driven financial system as banks continue to be used to pursue broader policy goals. While important efforts have been made to introduce regulation to the financial system and to improve corporate governance, enforcement remains a major area of concern, due to the lack of independence of bank managers and regulators and to the continuous intervention of China's government. Solvency problems are an area of concern as commercial banks are exposed to solvency problems due to public interference exercised by central and local governments that are not willing to abandon rooted practices of using banks as powerful policy tools that help to exercise control over the economy. Furthermore, competition remains low, as the Big Four enjoy an oligopoly position limiting the scope for competition, an aspect that the government is not willing to address and that can be a central part of the Chinese *sui generis* model. A banking system with a high degree of intervention, tight control over interest rates, credit quotas, licenses and a small opening for foreign banks does not offer an appropriate

environment that encourages competition or efficiency. At the same time, the growth of the shadow banking system is adding pressures on the need of further reforms that reduce financial repression and look to open up the banking sector due to the fact that an informal, largely unregulated, financial market has become increasingly risky as it can threaten the viability of the financial system (Lu et al., 2015). The traditional banking system in China has nurtured the development of shadow banking due to a credit regulatory policy that put severe restrictions on the ability of firms to obtain capital that, as a result, has prompted significant growth of the shadow banking system. Financial underdevelopment and financial repression have distorted saving and investment decisions affecting China's macroeconomic imbalances, aspects that need to be considered by the central government due to its global market economy aspirations. Government-induced distortions in the banking system impact negatively on financial development and undermine economic growth. Financial opening and deregulation are desirable features of a mature financial system, but the liberalisation process is associated with significant costs like the increase of market uncertainty, increased levels of competition, practices that seek to evade prudent regulations and the potential occurrence of a lending boom that can lead towards the creation of systemic vulnerabilities that would end up creating financial stress and ultimately, crises (Martin, 2012; Huang et al., 2013; Claessens et al, 1998).

Data and Methodology

Data Insights

Barker et al., (2012a, 2016) developed an index to measure economic policy uncertainty that is known as the EPUi. The EPUi has been used in a significant number of studies over the past few years. Researchers are very keen to develop the analysis of economic and market uncertainty and its implications for the macro-economy, the development of economic, monetary and fiscal policies and the repercussions and spillover effects to major macroeconomic fundamentals. The EPU index is understood as a good indicator of economic risk, and as such, we considered suitable its integration as part of this study. The analysis of the Chinese banking system and the historical dominance of the "Big Four" helps understand if the Chinese banking system is exhibiting fragile features during times of remarkable distress. As such the VIX, the HSI VIX the Global EPUi, and China's EPUi indexes were selected as suitable proxies that help capture market and economic dynamics and implications for China's top banks in a context of two market models, Granger causality and Frequency Domain causality tests.

Our research sample is formed by: the "Big Four" indices that account for China's top listed banks in the Shanghai and Hong Kong stock exchanges; we use four proxies for market uncertainty (the Global index for Economic Policy Uncertainty, the Chinese Economic Policy Uncertainty index, the Hang Seng Volatility Index and the VIX). Monthly data was used because the Economic Policy Uncertainty index for China is only available on a monthly basis, so the study starts with the development of a market model supported by monthly data and it moves towards the analysis of

dynamic causality using daily data with those variables which there is some available information, as the VAR approach followed by the frequency domain model did not work with the limited number of observations due to the use of a monthly frequency. As such, the study required the development of staged modelling to ensure that we were able to capture the banks' dynamics over the period of study. The time period under study spans from July 2010 to June 2018 subject to data availability and sample consistency.

Table 1: “The Big Four”- Chinese State-Owned Banks

Four State Owned Banks The Big Four	Total Assets US\$bn 2017	Stock Exchange	Sectors of Operation
Bank of China (BoC)	3,037.34	Shanghai	Foreign exchange, foreign trade and the national economy
China Construction Bank (CCB)	3,451.90	Hong Kong	Construction sector
Agricultural Bank of China (ABC)	3,284.79	Shanghai	Rural Banking businesses
Industrial and Commercial Bank of China (ICBC)	4,0070.22	Shanghai	Commercial and industrial activities in urban areas

*Source: Thomson Reuters Annual Information (2018). Four of the world's top 5 largest banks are Chinese financial institutions

The Chinese banking system is characterised by a multi-tiered system that is the outcome of the economic reforms introduced in the late 1970s as discussed earlier. The system contains wholly state-owned policy banks, local banks, private commercial banks and a growing underground sub-system that right now is a serious area of concern for Chinese policy makers. Overall, the Chinese banking system is considered to be very inefficient, due to the significant level of intervention from the central government, as the “Big Four” allocate around 60 percent of total credit to State Owned Enterprises (Martin, 2012; Fabre, 2013). The selected research framework integrates a market model, an augmented market model, static and dynamic causality tests that seek to offer robust outcomes regarding Chinese banks and their exposure to market, global and domestic uncertainty. The modelling process is summarised as follows: i) First, the data is transformed into returns (equation1) and realised volatilities are also estimated (equation3). ii) Afterwards, we identified the market models that would help capture the performance of the “*Big Four*” in the context of market uncertainty as outlined in equation 4 and 5 below. iii) The final part of the study is focused on the analysis of causal relationships between the “Big Four” and the selected proxies to capture for market uncertainty.

Market Model

Realised volatility is considered in the context of this study to gain an initial

understanding of the “Big Four” behaviour over the period under study (see appendix figure 4)

$$r_t = \ln(P_t) - \ln(P_{t-1}) \quad (1)$$

$$RV_t = \sum_{i=1}^n r_i^2 \quad (2)$$

$$RVol_t = \sqrt{RV_t} \quad (3)$$

The estimated market model is outlined below:

$$R_{it} = \beta_0 + \beta_1 R_{it-1} + \beta_2 R_{mt} + \beta_3 VIX_{it-1} + \beta_4 ChinaEPU_{it-1} + \beta_5 GlobalEpu_{it-1} + \varepsilon_{it} \quad (4)$$

where:

R_{it} = “Big Four” returns with $i = ABC, BOC, CCB, ICBC$.

R_{it-1} = “Big Four” returns lagged one period as per the outcome of the estimated VAR model

R_{mt} = market return (Shanghai Composite Se Index).

VIX_{it-1} = CBOE Implied Volatility Index; variable lagged one period as per the outcome of the estimated VAR model.

$ChinaEPU_{it-1}$ = Economic Policy Uncertainty Index for China.

$GlobalEPU_{it-1}$ = Global Economic Policy Uncertainty Index.

the Proxy variable would be equal to Global EPU_i, VIX and China's EPU_i and R_m for market risk measured by the Shanghai Stock Exchange.

Augmented Market Model

The market model (equation 4) is augmented to integrate the HSI VIX index that is a proxy to capture regional market uncertainty, as the HSI Volatility index tracks expected volatility of the Hang Seng Index implicit in the prices of the Hang Seng Options. The market model is then adjusted as follows:

$$R_{it} = \beta_0 + \beta_1 R_{it-1} + \beta_2 R_{mt} + \beta_3 VIX_{it-1} + \beta_4 ChinaEPU_{it-1} + \beta_5 GlobalEPU_{it-1} + \beta_6 HSIVIX_{it-1} + \varepsilon_{it-1} \quad (5)$$

The outlined market models help understand if the “Big Four” are sensitive to increased levels of market and economic uncertainty derived from the selected proxies. The China EPU_i and the Global EPU_i are introduced to measure the banks' reaction to economic and policy uncertainty with the aim of introducing a variable that measures domestic levels of uncertainty (China EPU_i) and global levels of market uncertainty (GLOBAL EPU_i); this will offer some insights with regard to the banks' level of openness to the global economy. For robustness purposes, the model is augmented to include the HSI VIX index that measures market uncertainty at the regional level. The next step in the modelling process involves the analysis of causal dynamics between the banks' performance and the selected proxies for regional and global uncertainty.

Granger Causality and Frequency Domain

Through the Granger causality and the frequency domain approach, we seek to examine frequency-varying causal effects across the banks under study with the aim of understanding how they are impacted upon by economic, equity and market uncertainty during the selected time period. The purpose is to identify the existence of a potential static and/or dynamic impact on the performance of the “*Big Four*” returns under a situation of market uncertainty that, in this case, would be measured by the selected proxies for uncertainty that are the VIX index (measuring a global impact) the HSI VIX index (measuring a domestic impact); and the Policy Uncertainty Variables for China (ChinaEPU) and the Global Context (Global EPU). The causality analysis is presented as a bivariate relationship that identifies the causal dynamics between the banks returns and the proxies for uncertainty, as outlined in the equation below:

$$R_{it} = \alpha_0 + \delta_{it}R_{it-1} + \gamma_{it}UProxy_{it-1} + \mu_{it} \quad (6)$$

where:

$UProxy_{it-1}$ = Uncertainty Proxy variable that integrates the four indexes capturing uncertainty in the context of bivariate causality modelling.

$$UProxy_{it-1} = VIX_{it-1}; HSI VIX_{it-1}; ChinaEPU_{it-1} \text{ and } GlobalEPU_{it-1};$$

In order to be able to estimate the frequency domain model, there was a need to use daily data, as the VAR estimation required a sufficient number of observations; this was however not possible in the case of the Economic Policy Uncertainty indexes since they are only monthly frequencies, limiting thereby the research sample to less than one hundred observations (95 observations in the context of this study); as a result, it was not possible to run an estimation including the Global EPUi and the China's EPUi as both indexes are available as monthly frequency with an outcome of 95 observations. As the main aim is to determine whether banks reacted differently to domestic or global uncertainty and to draw some connections regarding market volatility over the period under study and how they were impacted upon by episodes of remarkable market distress, the VIX and the HSI VIX indexes were considered appropriate proxies for regional and global uncertainty. A bivariate causality analysis between the selected banks and the proxies for market uncertainty is considered as part of the methodological framework with particular attention to causal effects running from the uncertainty indexes to the “*Big Four*” banks. A bivariate causality analysis in the context of the frequency domain brings further information to the indexes' behaviour over the sample period. The study by Breitung and Candelon (2006) is based on earlier work by Geweke (1982) and Hosoya (1991) that considered the two-dimensional vector containing with a finite-order VAR representative of order p ,

$$\Theta(L) \begin{pmatrix} Y_t \\ X_t \end{pmatrix} = \begin{pmatrix} \Theta_{11}(L) & \Theta_{12}(L) \\ \Theta_{21}(L) & \Theta_{22}(L) \end{pmatrix} \begin{pmatrix} Y_t \\ X_t \end{pmatrix} = \varepsilon_t \quad (6)$$

where, $\Theta(L) = I - \Theta_1 L - \dots - \Theta_p L^p$ is a 2×2 lag polynomial and $\Theta_1, \dots, \Theta_p$ are 2×2 autoregressive parameter matrices, with $L^k X_t = X_{t-k}$ and $L^k Y_t = Y_{t-k}$. The error vector ε_t represents white noise with zero mean and $E(\varepsilon_t \varepsilon_t') = \Sigma$, where Σ is positive and

finite. The MA representative of the system is

$$\begin{pmatrix} Y_t \\ X_t \end{pmatrix} = \psi(L) \eta_t = \begin{pmatrix} \psi_{11}(L) & \psi_{12}(L) \\ \psi_{21}(L) & \psi_{22}(L) \end{pmatrix} \begin{pmatrix} \eta_{1t} \\ \eta_{2t} \end{pmatrix} \quad (7)$$

with G being the lower triangular matrix of the Cholesky decomposition such that and The causality test developed by Geweke (1982) can then be written as:

$$M_{X \Rightarrow Y}(\gamma) = \log \left[1 + \frac{|\psi_{12}(e^{i\gamma})|^2}{|\psi_{11}(e^{i\gamma})|^2} \right] \quad (8)$$

Within this framework, no Granger causality from to with a frequency corresponds to the condition. Breitung and Candelon's (2006) main contribution is to show that this condition leads to

$$|\Theta_{12}(e^{-i\gamma})| = \left| \sum_{k=1}^p \Theta_{k,12} \cos(k\gamma) \right| - \left| i \sum_{k=1}^p \Theta_{k,12} \sin(k\gamma) \right| = 0 \quad (9)$$

where, $\Theta_{k,12}$ is the (1,2) element of Θ_k , such that a sufficient set of conditions for no causality is given by

$$\sum_{k=1}^p \Theta_{k,12} \cos(k\gamma) = 0 \text{ and } \sum_{k=1}^p \Theta_{k,12} \sin(k\gamma) = 0, \quad (10)$$

Hence, we can test the null hypothesis of no Granger causality with a frequency γ using a standard F-test for the linear restrictions imposed by the VAR representative of order p, which follows an F(2, T-2p) distribution for every γ between 0 and π , where T is the number of observations in the series (Breitung and Candelon, 2006).

Research Framework Justification

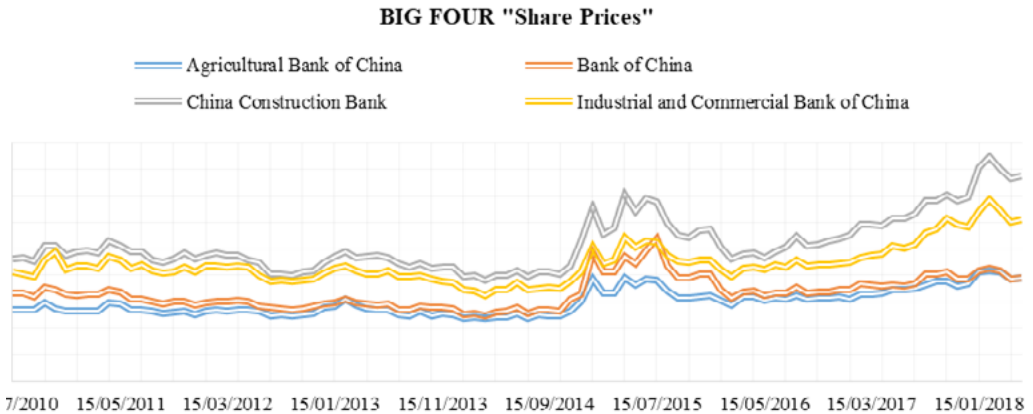
The implementation of a combined research framework supported by market models and causal tests offered a rich analysis to understand China's main banks performance in the context of regional and global uncertainty. The frequency domain causality test was selected because it is a dynamic test that can measure how the relationship between variables changes over the period under study and enrich the estimation from traditional static causal tests by bringing a dynamic approach to the study. Furthermore, as the study is analysing stability patterns exhibited by the "Big Four" it is important to consider if market uncertainty impacts on the performance of bank returns and if the relationship is dynamic, justifying the need of a close monitoring of banks behaviour as rising levels of market uncertainty can help policy makers to design and identify appropriate short-term policy measures that minimise potential negative spillover effects to the macroeconomic fundamentals so as to limit long-lasting effects in terms of market uncertainty.

Research Findings and Critical Insights

China's banking sector has experienced significant changes that have led to the deconstruction of the sector's functions, the need to address and resolve banks' major problems associated with non-performing loans, and the changes and continuous

transformation of the shareholding system that has settled the foundations to allow the sector to grow in strength and to start improving its international status (Min et al., 2018).

Figure 2: China Top Banks Share Prices



*Source: Thomson Reuters Annual Information (2018)

After the Global Financial Crisis, the Chinese economy was dealing with slow growth and entrenched deflation. Realised volatility (see figure 5 in the appendix) for the banks showed that late in 2014 and during 2015 the banks performance was characterised by high levels of market uncertainty that lasted for a few months. However, since late 2016, the performance of the Big Four shares reflect clear improvements in terms of market sentiment. The shares of the Industrial and Commercial Bank of China and of the China Construction bank (the nation's biggest lenders) rose to their highest levels in February 2018 setting a record high and offering initial signs of good macroeconomic performance, with analysts expecting "banking stock to be on the rise in 2018 amid a pickup of the Chinese economy" (South China Morning Post, 2018).

Table 2: Correlation Matrix

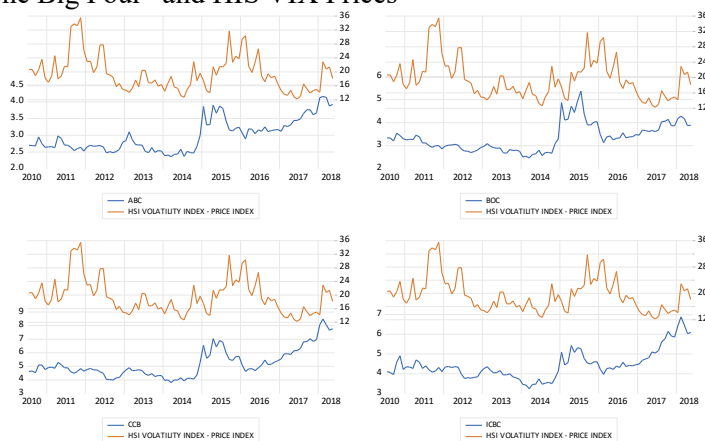
	ABC	BOC	CCB	ICBC	VIX	China_EPU _i	Global_EPU _i	HSI VIX
ABC	1.000000	0.899483	0.962161	0.918767	-0.294487	0.306871	0.167348	-0.130832
BOC		1.000000	0.857825	0.793973	-0.168055	0.180053	0.056518	-0.005840
CCB			1.000000	0.972655	-0.223161	0.250201	0.115737	-0.103419
ICBC				1.000000	-0.184442	0.236139	0.133727	-0.065402
VIX					1.000000	-0.047258	0.150476	0.735554
China_EPU _i						1.000000	0.880811	0.031548
Global_EPU _i							1.000000	0.206195

	ABC	BOC	CCB	ICBC	VIX	China_EPU _i	Global_EPU _i	HSI VIX
HSI VIX								1.000000

Research Sample: July 2010 to June 2018; data frequency: monthly data, number of observations: 95.

The correlation matrix above shows very interesting outcomes. As expected, there is a strong interlinkage between the “*Big Four*”, as correlations are positive ranging from 0.79 to 0.97 offering initial evidence of the strong connection that exists between the Big Four. However, the outcomes for market, domestic and global uncertainty are quite different. The correlations between the Big Four and the VIX are quite low and negative suggesting that the Big Four do not seem to be negatively affected by global market uncertainty. The outcomes for the HSI VIX align with patterns showed by the VIX, but in this case, correlations are slightly smaller (see figure 3 below for further insights). In the case of economic policy uncertainty in China, correlations are positive but quite low, a result that mirrors the outcomes for global economic policy uncertainty. However, it is worth to notice that the correlations for domestic uncertainty are higher than the ones registered for global uncertainty, suggesting that the banks are more impacted upon by economic and policy issues with a domestic origin rather than a global origin. The charts available in the Appendix (see figure 3) confirm the insights from the correlation matrix, as there is a clear positive correlation between the “*Big Four*” with lower connections detected between the banks and the proxies for market and economic uncertainty.

Figure 3: “The Big Four” and HIS VIX Prices



Before estimating the outlined market models (see equation three and four for details), basic time series tests were run to ensure that the econometric framework was properly developed. The analysis started with the estimation of a VAR model that allowed selecting the optimal number of lags to be used on the market model (the VAR suggested one lag). The ADF test was implemented to ensure stationarity properties of the series under study, and the multivariate cointegration test – Johansen and Juselius

– was estimated (there was no evidence of a long relationship between the “*Big Four*” and the proxies for market and economic policy uncertainty) to ensure that the static and dynamic Causality tests were properly defined. The outcomes for the market model are presented in table three below.

Table 3: Market Model Estimation

“Big Four”	β_0	β_1	β_2	β_3	β_4	β_5
ABC	0.004 (0.4097)	-0.252 (0.0110)**	0.430 (0.000)*	-0.0183 (0.4586)	0.001 (0.9360)	-0.0318 (0.3493)
BOC	0.0012 (0.8481)	-0.2110 (0.0322)**	0.500 (0.000)*	-0.0096 (0.7531)	0.0135 (0.4223)	-0.0616 (0.1431)
CCB	0.005 (0.3256)	-0.1666 (0.0956)***	0.4904 (0.000)*	-0.02811 (0.2873)	0.0096 (0.510)	-0.0566 (0.1191)
ICBC	0.004 (0.3794)	-0.239 (0.0142)**	0.4526 (0.000)*	-0.022 (0.3696)	0.0053 (0.6937)	-0.043 (0.1973)

*** 10% significant level, ** 5% significant level, * 1% significant level; p-values are presented in brackets. The market model was augmented to include the HSI Index to ensure robustness of outcomes (see table 5 below). Research Sample: July 2010 to June 2018; data frequency: monthly data, number of observations: 95.

The market model shows that overall, the “*Big Four*” lagged value explains the behaviour of bank returns over the period having a negative impact on returns performance, with weak evidence reported in the case of the CCB (10% level of significance). Regarding market performance, the banks underperform the Shanghai Composite Se with beta coefficients ranging from 0.43 to 0.50, indicating that the banks are quite conservative and risks levels associated with the banks are below expected market levels. The outcomes for the proxies for market and economic policy uncertainty showed that the “*Big Four*” do not seem to be exposed to market uncertainty levels rising in the domestic and global markets. The outcomes for the augmented market model (see table 4 below) are in line with the results for the market model (equation 3), confirming the importance of lagged prices to explain market prices behaviour. The *Big Four* could be considered as exhibiting conservative patterns when compared to market performance with beta coefficients () exhibiting values quite below one, and smaller than the ones estimated by the market model with the exception of BOC that is slightly higher.

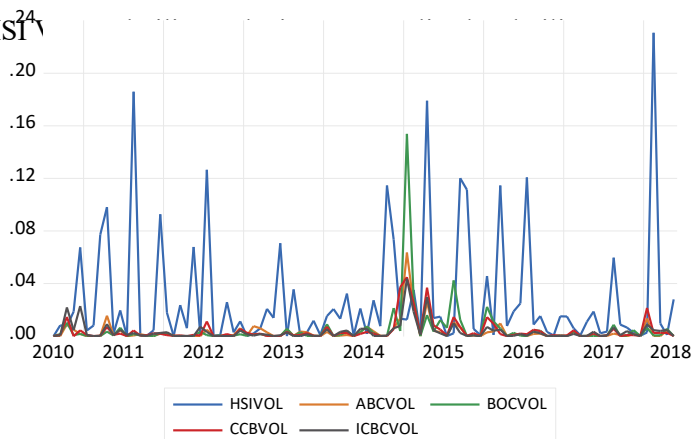
Table 4: Augmented Market Model including HSI VIX Index

“Big Four”	β_0	β_1	β_2	β_3	β_4	β_5	β_6
ABC	-0.0007 (0.8667)	-0.3336 (0.0000)*	0.3654 (0.000)*	-0.0147 (0.5108)	-0.0152 (0.6346)	-0.0108 (0.3735)	-0.0236 (0.4491)

“Big Four”	β_0	β_1	β_2	β_3	β_4	β_5	β_6
BOC	-0.003 (0.4216)	-0.3142 (0.0000)*	0.5326 (0.0000)*	-0.0352 (0.2727)	-0.0106 (0.3857)	-0.0106 (0.3857)	-0.0304 (0.3336)
CCB	0.000 (0.9199)	-0.1622 (0.0481)**	0.3627 (0.0000)*	-0.0080 (0.7200)	-0.0458 (0.1499)	0.0031 (0.7943)	-0.0500 (0.1096)
ICBC	0.0000 (0.9909)	-0.2300 (0.0139)**	0.3714 (0.0000)*	-0.01387 (0.5719)	-0.03737 (0.2859)	-0.0014 (0.7059)	-0.0129 (0.7059)

*** 10% significant level, ** 5% significant level, * 1% significant level; p-values are presented in brackets. The market model was augmented to include the HSI Index as follows: (the outcomes of the model did not changed the initial model results in a significant manner, showing consistency on results confirming the insignificant impact of proxies for market and economic uncertainty on the performance of the Big Four). Research Sample: July 2010 to June 2018; data frequency: monthly data, number of observations: 95

Figure 4: HSI²⁴



The outcomes from the causality analysis offer conflicting results (see table 5 below). The Granger causality test did not find evidence of causal effects from the proxies for market and economic policy uncertainty towards the “Big Four”. On the other hand, the results from the frequency domain offer evidence of bidirectional causality that are linked to registered episodes of increased market volatility with no evidence of causal effects when the volatility levels are considered at “normal” levels (see figure 4 above and 7 in the appendix). These results are pointing to the need of short-term monitoring of banks performance, with domestic and regional events appearing to have a stronger impact on the Chinese banking system rather than any global exposure, as dynamic causal effects were relatively limited when compared to domestic uncertainty with a more dynamic behaviour identified.

Table 5: Causality

“Big Four”	Granger Causality				Frequency Domain	
	VIX	ChinaEPUi	GlobalEPUi	HSI VIX	VIX	HSI VIX
ABC	No	No	No	No	↔*	↔*
BOC	No	No	No	No	↔*	↔*
CCB	←***	←***	No	No	↔*	↔*
ICBC	No	No	No	No	↔*	↔*

*The Granger causality test offers weak evidence on unidirectional causality running from the VIX and the China EPUi to CCB with p-values at ten percent level (the test was performed on calculated returns). Research Sample: 16th July 2010 to 8th June 2018; data frequency: monthly data, number of observations: 95 for Granger Causality. In the Case of the Frequency Domain Research Sample: 16th July 2010 to 8th June 2018; data frequency: daily data, number of observations: 2061.

Critical Insights

The Chinese authorities have introduced significant reforms to the country’s banking system with the aim of improving banks in terms of size and capital. However, despite all the efforts and implemented measures, there is still a need of further work, as the asset quality, business profitability and diversification of services are not well-developed, and as they are considered to be quite far from international standards (Paulet and Relano, 2018). Researchers question the capacity of the Chinese banking system and its ability to support and promote sustainable growth and to deal with international demands. Hou, Wang and Zhang (2014) argue that the Chinese banking system appears to be surrounded by more uncertainty than ever. Dobson and Kashyap (2006) go a step further by identifying conflicting goals as part of the reform process, as authorities seek to accomplish incompatible objectives in a simultaneous manner. Government authorities are safeguarding their ownership and control of banks, as they are considered as key tools to implement the government social-driven policies, and at the same time they are looking to achieve greater levels of efficiency. This contradiction is considered as one of the biggest originalities of the Chinese financial system, that despite four decades of successive reforms, the government still preserves a strong influence on the banking sector (Allen, Qian and Qian, 2007; Kobil and Dow, 2013). A significant number of research studies examining the efficiency of the banking sector seem to converge towards the view that privatisation, deregulation and the presence of foreign banks are generally associated with improved performance and efficiency in the overall system (Heffernan and Fu 2008; Garcia-Herrero and Santabárbara 2008; Laurenceson and Qin 2008; Ferri 2009; Fu and Heffernan 2009; Lin and Zhang 2009; Shen, Lu, and Wu 2009; Zhang and Daly 2011; Jiang, Yao, and Feng 2013; Xu and

Hu 2013; Dong et al. 2014; Foo and Witkowska 2014; Tan 2014, 2016). On the other hand, a very limited amount of studies seems to bring a different view, arguing that the results are still not entirely conclusive (Fu and Heffernan 2009; Lin and Zhang 2009; Shen, Lu, and Wu 2009). Paulet and Relano (2018) argue that China's banking system is increasingly shaped by Western standards and will most likely continue to be so in the near future. However, is this really the case? Chinese authorities seem to have a different understanding of the role of the banking system as they are moving quite ahead with their reforms and strict compliance with Basel III recommendations by establishing a system of prudential banking regulation that is stricter than international standards. This approach highlights the importance for Chinese authorities of keeping tight controls on their banking system, and this should be considered carefully as deregulated and liberalised banks can harm the macro-economy, as the painful lesson learnt from the GFC has taught; from China's perspective, this implies that the plans ahead for its banking and financial system might not be that closely connected to the model followed by the Western economies.

Conclusions

China's ability to keep growing and gaining in terms of efficiency is tightly connected with the development of its banking and financial system. Despite tremendous changes over a relatively short period of time, the country's capital markets remain underdeveloped when compared to other emerging economies in the East Asian region. China's financial deregulation and globalisation is affected by significant deficiencies in terms of credit culture and information transparency. The government's backing of SOEs borrowing has created moral hazard issues, as banks finance unviable projects because of the state's implicit insurance. Chinese banks are not able to offer proper support to the non-state sector; as a result, they are not capable of acting as the financial engine of the economy, since the banks are mainly a source of soft-lending to loss-making SOEs and since shadow banking is on the rise. China's banking system is clearly dominated by few large banks that are facing serious quality asset problems, a fragmented credit culture, a noisy information set, a weak regulatory framework with supervisory deficiencies that require further progress (Nazmi, 2006). An issue that needs to be questioned is how economies that have liberalised their financial system defending deregulation, market efficiency, innovation and global integration were badly affected by the GFC, while China with its closely monitored and interventionist financial system has managed to weather two major crises – the Asian Financial Crisis and the GFC. There is no doubt that market efficiency, innovation and competition are desirable features, but there is also a need of considering that the financial system requires some level of regulation and market intervention to ensure that systemic risk is under control. The key challenge for Chinese authorities is how to implement the needed reforms without creating disruptions and moving towards the implementation of a model that goes against the foundations of its economic model.

Finally, China's reform of its financial system can perhaps bring new aspects that might open the debate towards a different banking model that offers an alternative

to the existing western-dominated financial systems. This is a line of research that remains open as China keeps progressing with its ambitious reform strategy.

References

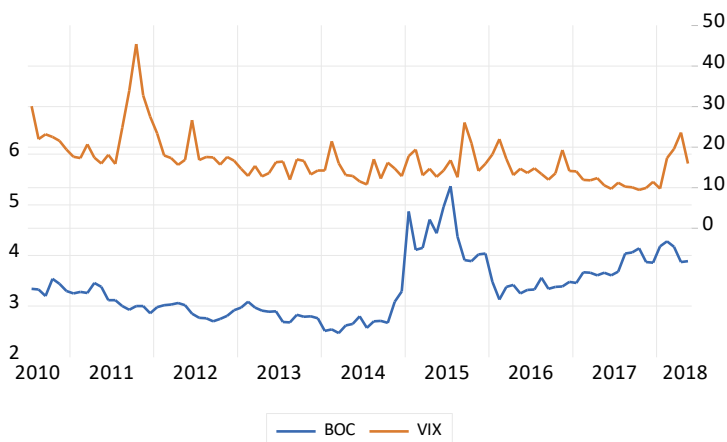
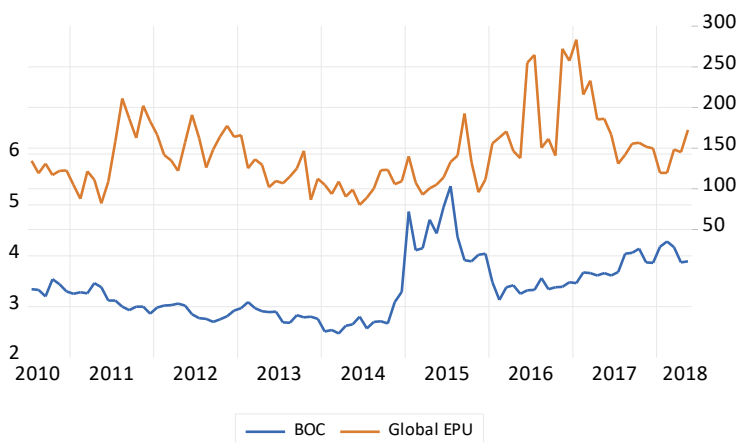
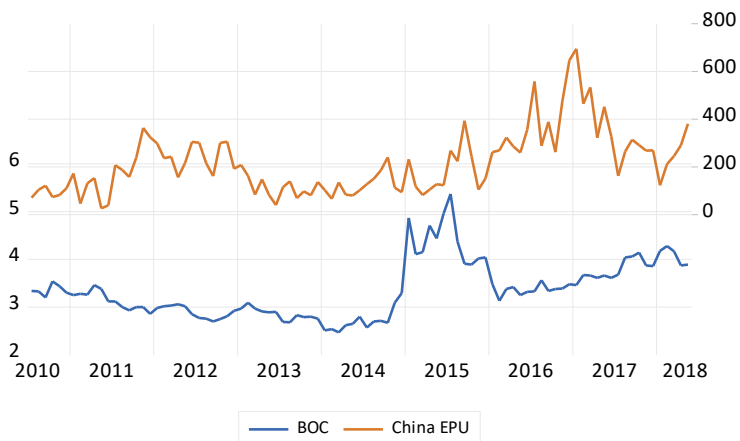
- Allen, Qian, F., J. and Qian, M. (2007) "China's Financial System: Past, Present, and Future." The Wharton School, University of Pennsylvania, Financial Institutions Center, Working paper Series.
- Andreosso-O'Callaghan, B., and J. C. Gottwald (2013) "How red is China's red capitalism? Continuity and change in China's financial services sector during the global crisis", *Asia Pacific Business Review*, 19: 4, Special Issue 'Demystifying Chinese Management: Issues and Challenges (2013) pp. 444-60.
- Hersh, A. (2014) "Assessing China's Economic Reform Agenda" (Washington: Center for American Progress, 2014), available at <http://www.americanprogress.org/issues/economy/report/2014/05/01/88864/assessing-chinaseconomic-reform-agenda/>
- Baker, S., Bloom, N., and Davis, S. J. (2012a). "Measuring economic policy uncertainty." University of Chicago and Stanford University, www.policyuncertainty.com. Accessed May 29, 2016.
- Baker, S. R., Bloom, N., and Davis, S. J. (2012b) "Has economic policy uncertainty hampered the recovery?" In L. E. Ohanian, J. B. Taylor, & I. J. Wright (Eds.), *Government policies and the delayed economic recovery* (pp. 39–56). Stanford, CA: Hoover Institution Press.
- Baker, S.R., Bloom, R.N., and Davis, S.J. (2015) "Measuring Economic Policy Uncertainty." NBER working paper series. (<http://www.nber.org/papers/w21633>)
- Breitung, J., and Candelon, B (2006) "Testing for short-and long-run causality: A frequency-domain approach." *Journal of Econometrics*, 132(2):363_378, 2006.
- Claessens, S., Demirgüç-Kunt, A. and Huizinga, H. (1998) *How Does Foreign Entry Affect the Domestic Banking Market?* World Bank Policy Research Working Paper 1918. World Bank, Washington D.C.
- Dobson, W., and Kashyap, A. (2006). *The Contradiction in China's Gradualist Banking Reforms*. Washington, DC: Brookings Papers on Economic Activity, No. 2.
- Dong, Y., Meng, C., Firth, M., and Hou. W. (2014) "Ownership Structure and Risk-Taking: Comparative Evidence from Private and State-Controlled Banks in China." *International Review of Financial Analysis* 36: 120–130.
- Dorrucci, E., Meyer-Cirkel A., Santabárbara, D. (2009) "Domestic financial development in emerging market economies: evidence and implications." ECB occasional paper no. 102
- Fabre, G. (2013) "The lion's share: What's behind China's economic slowdown?" Paper presented at Séminaire BRICS. Fondation Maison des Sciences de l'Homme, No. 53, Octobre, Paris.
- Ferri, G. (2009) "Are New Tigers Supplanting Old Mammoths in China's Banking System? Evidence from a Sample of City Commercial Banks." *Journal of Banking & Finance* 33: 131–140.
- Fernald, J., Spiegel, M.M., Swanson, E.T. (2014) "Monetary Policy Effectiveness in China: Evidence from a FAVAR Model." Federal Reserve Bank of San Francisco 2014-07.

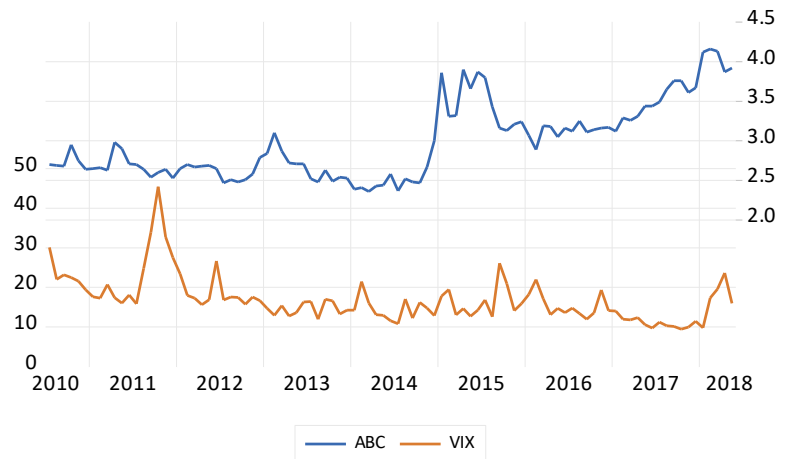
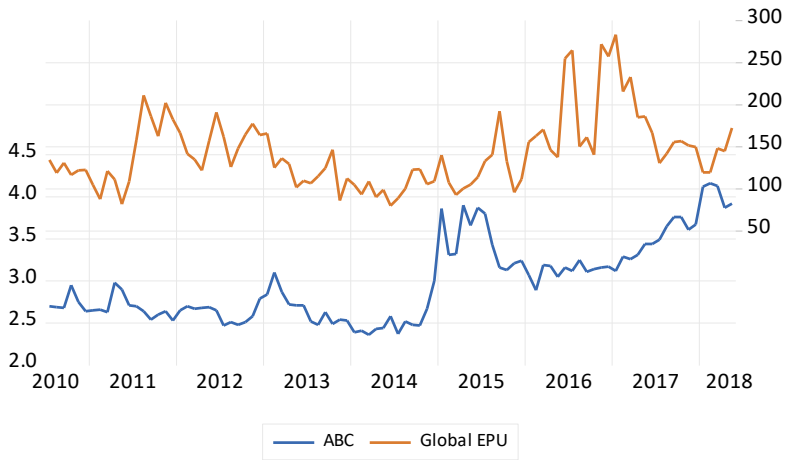
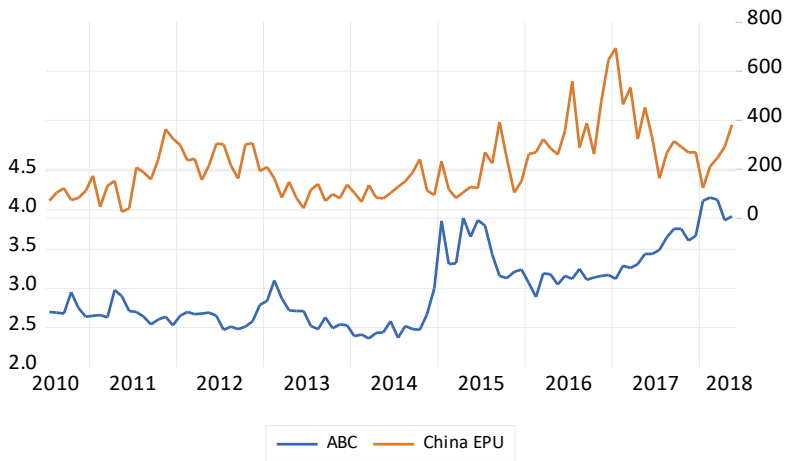
- Foo, J., and Witkowska, D. (2014) "An Efficiency Comparison of Chinese Banks: A Multidimensional Analysis." *International Journal of Business* 19 (1): 44–62.
- Fu, X., and Heffernan, S. (2009) "The Effects of Reform on China's Bank Structure and Performance." *Journal of Banking & Finance* 33 (1): 39–52.
- Garcia-Herrero, A., and Santabárbara, D. (2008) "Is the Chinese Banking System Benefiting from Foreign Investors?" BBVA Working papers, No. 0804.
- García-Herrero, A., and Santabárbara, D., (2013) "An Assessment of China's Banking System Reform." In S., Kaji and E. Ogawa (eds.) *Who Will Provide the Next Financial Model? Asia's Financial Muscle and Europe's Financial Maturity*. Springer, Tokyo. DOI 10.1007/978-4-431-54282-7_15.
- Geweke, J. (1982). "Measurement of Linear Dependence and Feedback between Multiple Time Series." *Journal of the American Statistical Association*, 77(378): 304-324.
- Guonan, M. and McCauley, R. N. (2008) "Efficacy of China's Capital Controls: Evidence from Price and Flow Data," *Pacific Economic Review* 13 (1) (2008): 104–123.
- Heffernan, S., and Fu, X. (2008) "The Determinants of Bank Performance in China" *Emerging Markets Group Working Papers*.
- Hosoya, Y. (1991). "The Decomposition and Measurement of the Interdependence between Second-Order Stationary Processes." *Probability Theory and Related Fields*, 88: 429-444.
- Hou, X., Wang, Q., and Zhang, Q. (2014) "Market Structure, Risk Taking, and the Efficiency of Chinese Commercial Banks." *Emerging Markets Review* 20: 75–88.
- Hsu, S. (2016) "China's Banking Sector as the Foundation of Financial Reform". *Asia and the Pacific Policy Studies*, Vol. 3 (2), pp. 244-248.
- Huang, Y., Wang, X., Wang B., Lin, N. (2013) "Financial Reform in China: Progress and Challenges". In: Park YC, Patrick H (eds) *How Finance is Shaping the Economies of China, Japan, and Korea*, pp. 44–142. Columbia Business School Publishing, Columbia University Press, New York.
- International Monetary Fund, "Reserve Accumulation and International Monetary Stability" (2010).
- Jiang, C., Yao, S., Feng, G. (2013) "Bank Ownership, Privatization, and Performance: Evidence from a Transition Country". *Journal of Banking & Finance* 37(9), 3364–3372.
- Kobil, R., and Dow, S. C. (2013) "A Review of Banking Sector Reforms in Transition Economies". Bristol: University of the West of England, Centre for Global Finance, Working Paper Series, No. 3.
- Laureceson, J., and Qin, F. (2008) "Has Minority Foreign Investment in China's Banks Improved Their Cost Efficiency?" Brisbane: University of Queensland, School of Economics, East Asia Economic Research Group Discussion Paper No 13.
- Lin, X., and Zhang, Y. (2009) "Bank Ownership Reform and Bank Performance in China." *Journal of Banking & Finance* 33(1): 1000–1010.
- Lingling, W., and Davis, B. (2013) "IMF Urges Cautious China Capital Moves," *The Wall Street Journal*, July 17, 2013, available at <http://online.wsj.com/news/articles/SB30001424127887324263404578611480166001050>.
- Lu, Y., Guo, H., Kao, E., and Fung, H-G. (2015) "Shadow banking and Firm financing in China". *International Review of Economics and Finance*, 36, pp. 40-53.

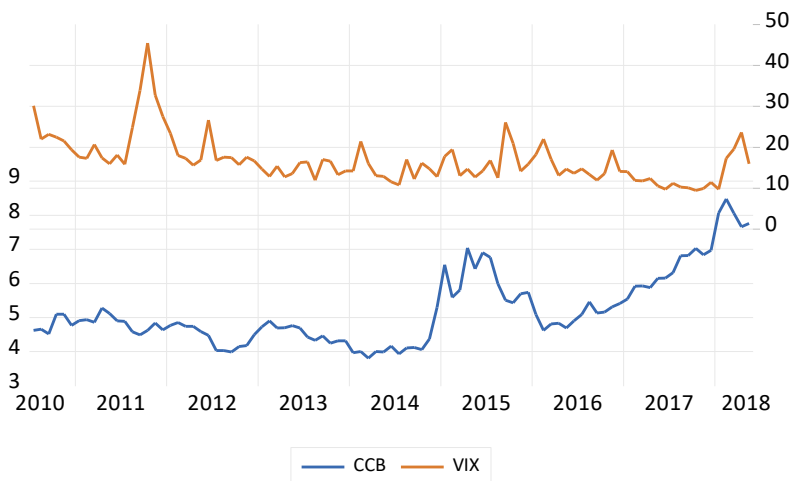
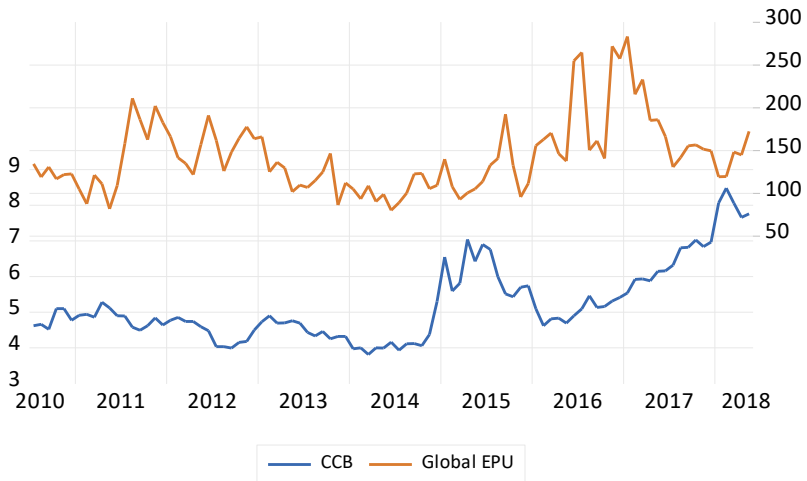
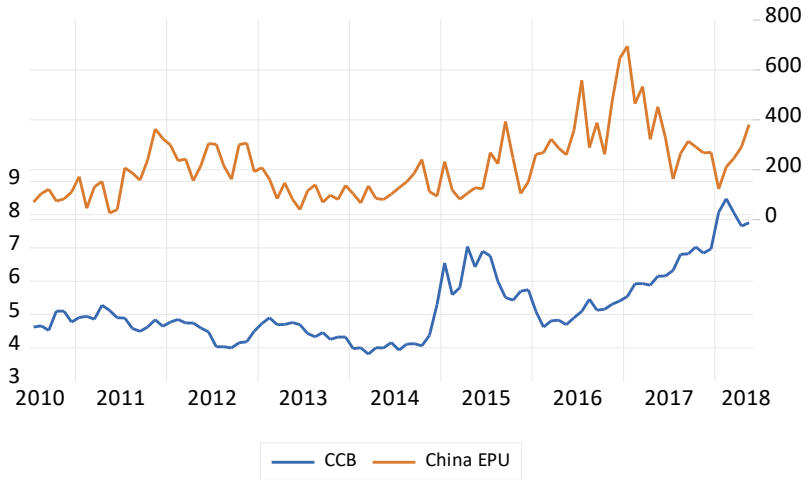
- Martin, M.F. (2012) "China's Banking System: Issues for Congress". Congress Research Service, Washington, DC.
- Min, Z., Weidong, C., Jingtong, Z., Xinzhe, G., and Qiyue, X. (2018) "The development of China's financial system: a global perspective." *China Economic Journal*, Vol 11(1) pp. 25-43.
- Nazmi, N. (2006) "Financial Sector Reform and Economic Growth in China". In Chen and Yao (eds.) *Globalization, Competition and Growth in China*, pp. 56-76. Routledge Taylor and Francis Group, London and New York.
- Paulet, E., and Relano, F. (2018) "Chinese banking reforms in perspective: towards global alignment or national specificity?" *Asia Pacific Business Review*, Vol. 24 (3), pp. 294-311.
- Dobbs, R., Leung, N., and Lund, S. (2013) "China's rising stature in global finance," *McKinsey Quarterly*, July 2013, available at http://www.mckinsey.com/insights/winning_in_emerging_markets/chinas_rising_stature_in_global_finance.
- Shen, C. H., C. Lu, H. and Wu, M. W. (2009) "Impact of Foreign Bank Entry on the Performance of Chinese Banks." *China & World Economy* 17 (3): 102–121.
- Tan, Y. (2014) "Performance, Risk and Competition in the Chinese Banking Industry." Oxford: Chandos Publishing.
- Wong, Y. C. R. and Wong M. L. S. (2001) "Competition in China's domestic banking industry," *Cato Journal* 21, 19–41.
- Xu, B., and Hu, H. (2013) "The Impact of Government Ownership on Performance: Evidence from Major Chinese Banks." Master Thesis of Science in Finance, Simon Fraser University.
- Yao, S., Jiang, C., Feng, G., and Willenbockel, D. (2006) "WTO challenges and efficiency of Chinese banks". In Chen and Yao (eds.) *Globalization, Competition and Growth in China*, pp. 56-76. Routledge Taylor and Francis Group, London and New York.
- Zhang, X., and Daly, K. (2011) "China's Banks Ownership and Performance." <http://ssrn.com/abstract=1914894>.

Appendix

Figure 5: Big Four Prices and Proxies for Market Uncertainty Indexes







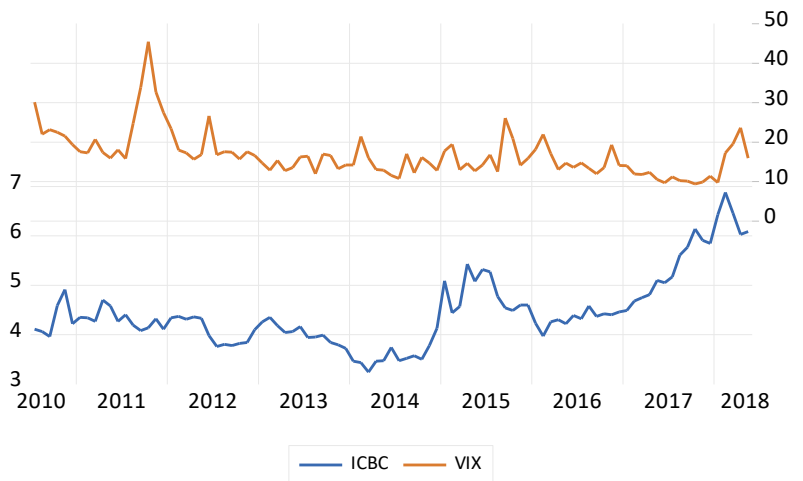
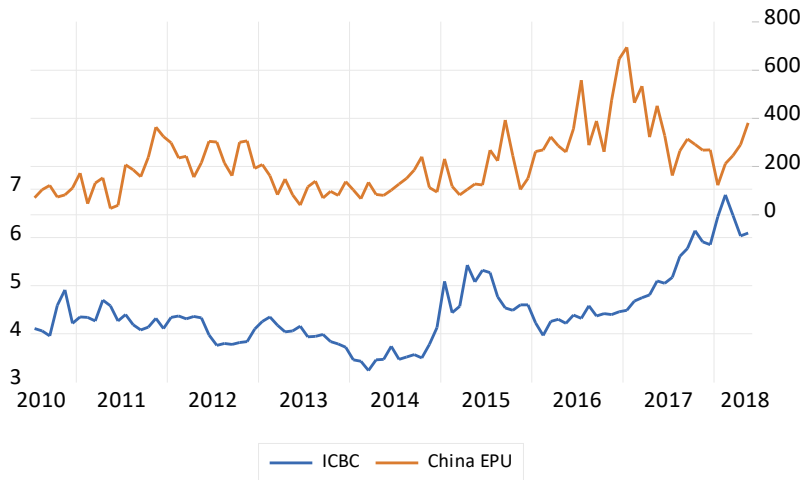
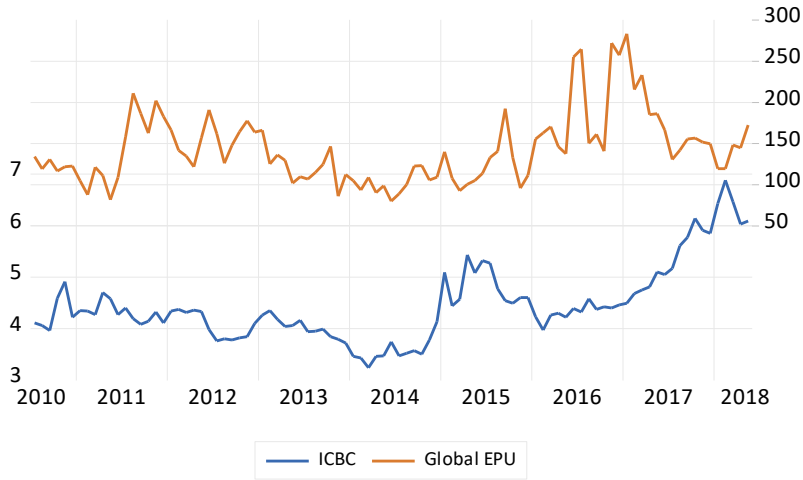


Figure 6: “Big Four” Realised Volatility

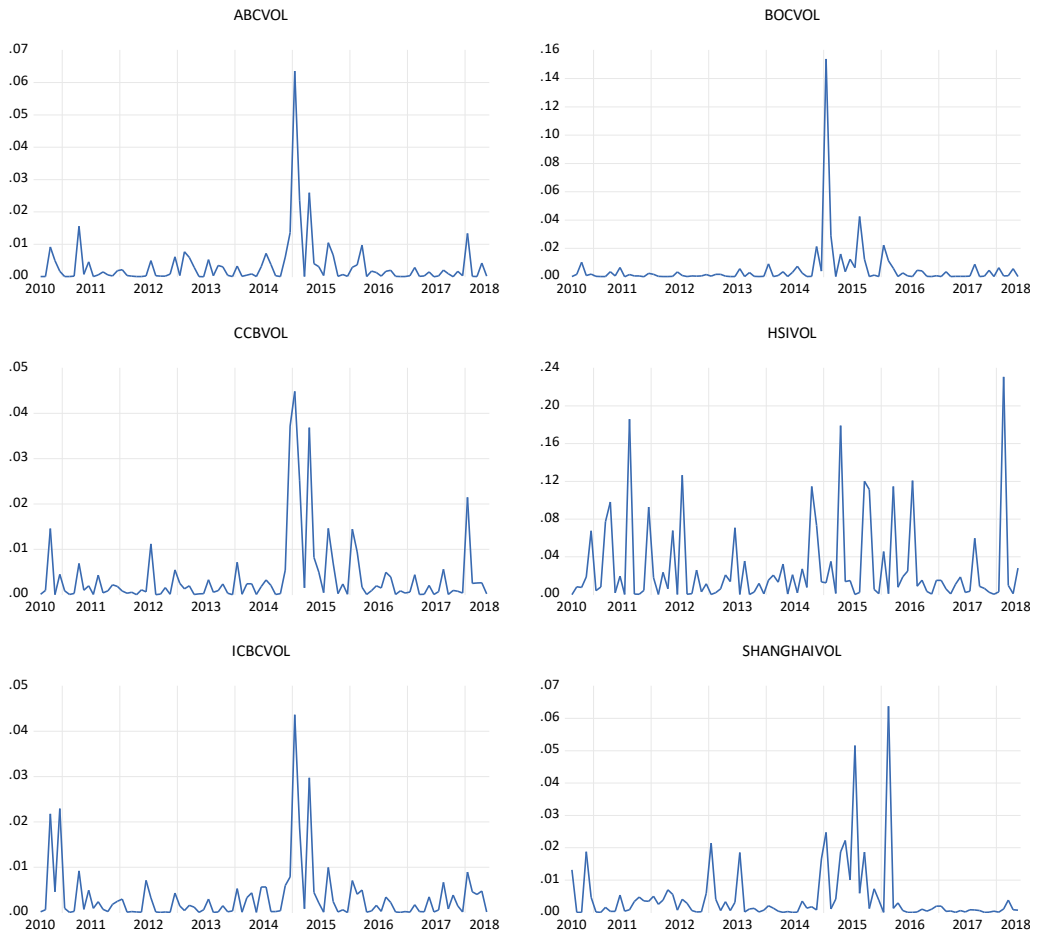
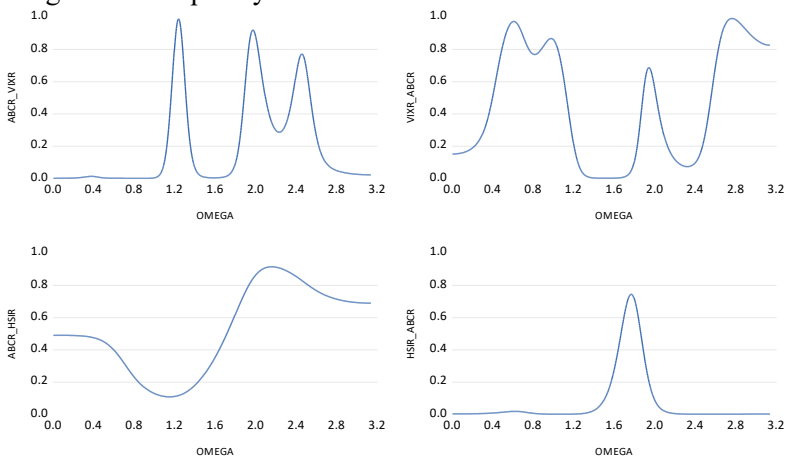
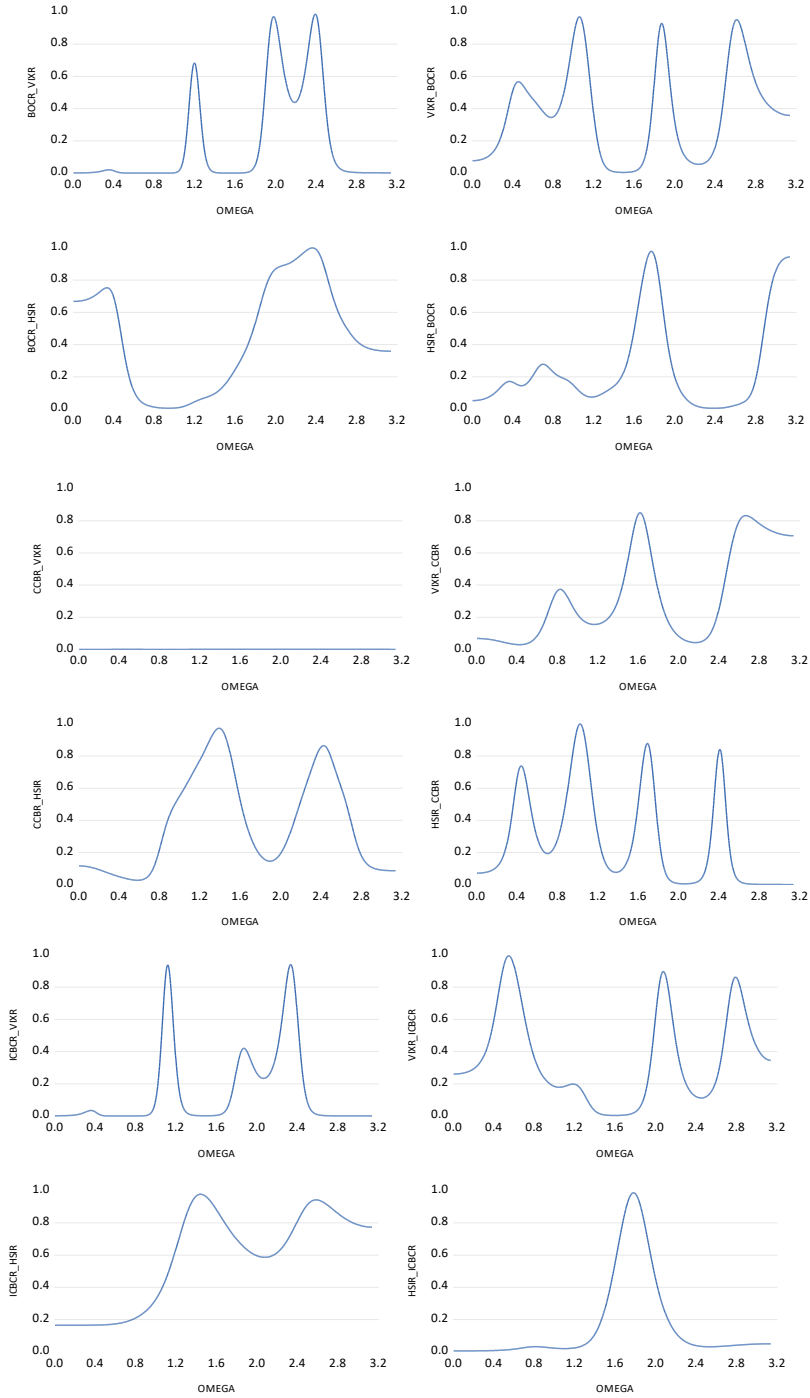


Figure 7: “Big Four” Frequency Domain Estimation Outcomes





Toshiba's market valuation in the midst of a long term turmoil

Serge Rey* • Sophie Nivoix**

Abstract Since 2008 Toshiba is experiencing a major fraud and financial scandal, which has impaired its stock price, governance and reputation. As this conglomerate is one of the largest and more ancient Japanese industrial group, it is highly interesting to analyze the impact of this situation on the main financial indicators of the company in a long run perspective. Our study underlines that while the risk level of the firm was increasing the returns and stock price were dropping. Such an evolution really endangered the group, as showed by the stock market ratios. In addition, the calculation of abnormal returns confirms that the news considered *a priori* as good (or bad) generated cumulative increases (or decreases) in the returns of the Toshiba stock.

Keywords: Toshiba; Japan; abnormal return; risk; auditing; scandal

JEL Classification: G00; G14; G32; G33

1. Introduction

Toshiba, founded in 1875, is one of the largest Japanese industrial group, with close to 4000 billion yen sales in 2017. The group includes more than 140 000 employees throughout the world, and operates in electronic devices, digital solutions, social infrastructures and energy business. Its development has been done in line with the Japanese economic rise over the last century. But since its historical high of 1169 yens in July 2007, the Toshiba stock price fell dramatically to a historical low of 158 yens in February 2016. Such a tremendous value drop was caused by several accounting and fraud scandals, by the costly acquisition of Westinghouse electric company in 2007, the bankrupt of this subsidiary in 2017, as well as the consequences of the financial crisis. The sustainable development and energy issue is important here as Westinghouse is operating in the nuclear power industry, while Japan experienced the Fukushima catastrophe in 2011.

We intend to investigate the impact of the major events concerning Toshiba both on the financial situation and on its share price and volatility, considering

Serge Rey (✉)*, Sophie Nivoix**

* Professor, University of Pau, Cedex, France

e-mail: serge.rey@univ-pau.fr

** Associate Professor, University of Poitiers, Poitiers, France

e-mail: sophie.nivoix@univ-poitiers.fr

that according to the efficient market hypothesis the stock price adjustment should be immediate (Fama et al., 1969). Many event studies (McKinlay, 1997) focused on the market reaction after specific announcements, such as earnings surprises, fraud or disasters (Jaussaud et al., 2015). The issue is to determine the effects of events on main indicators of risks and returns and the amplitude of the market price and volatility reaction, i.e. abnormal stock returns in relationship with the kind of event in a specific firm.

It is all the more interesting that Toshiba is a major worldwide company in the industries of energy and infrastructures, community solutions, electronic devices and components, and lifestyle products¹.

In order to understand the long run evolution of the group, we investigated the financial situation of Toshiba from 1997 to 2017. This includes the analysis of the main return and risk key indicators as well as its stock price evolution. As our results point out, the hitherto unknown financial issues of Toshiba are associated with a sharp long term drop of its stock. In addition, the calculation of abnormal returns confirms that the news considered *a priori* as good (or bad) generated cumulative increases (or decreases) in the returns of the Toshiba stock.

Section 2 presents the context of the events and section 3 lists the main events on the period 1987-2019. Section 4 proposes an empirical analysis of financial ratios, while section 5 shows the impact of news on abnormal returns. Section 6 concludes.

2. The general context of the events

2.1 *The main information about the scandals*

The fraud events over 2008-2017 took place during a difficult economic period, both at the worldwide and at the Japanese levels. Indeed, the OECD (2017) anticipated that the fiscal support in Japan was expected to fade in 2018, despite an estimated growth close to 1%. In 2018, the primary deficit of the country was -3.7%, which is well above the government's benchmark of 1% of GDP, leading to a further rise in the government debt to GDP. Moreover, the 2019 deficit should reach -3.8%. As for companies themselves, the OECD indicates that because of the increasing integration of the country in global value chains, especially in Asia, the benefits of international trade are concentrated in large firms, such as Toshiba for instance.

It is important to note that Toshiba is a major worldwide company in the industries of energy and infrastructures, community solutions, electronic devices and components, and lifestyle products. Toshiba group comprised in 2016 more than 550 consolidated subsidiaries and 188 000 employees, but the seminal firm was created in 1875 (Tanaka manufactures), and its actual name was given in 1939 as a short name of firm after the merger between Tokyo Denki and Shibaura Seisakujo. Before world war II Toshiba was a member of Mitsui zaibatsu, and since then it is affiliated to the Mitsui keiretsu.

As will be detailed in the timeline of the events, the problem Toshiba is facing is not only about accounting irregularities in 2008-2014 fiscal years. The fraud, which

¹ source: https://www.toshiba.co.jp/about/press/2017_07/pr1801.htm.

was revealed by third parties at the Securities and Exchange Surveillance Commission (SESC), lasted several years and both internal and external controls failed. Rahman and Bremer (2016) identified five main causes: “domineering top management, compliant middle-managers who embody the worst of the salaryman mentality, duplicitous auditors, percentage-of-completion method accounting abuse, and the secular decline in several of the company’s business lines”.

As any company operating in a fast growing high-tech industry, Toshiba can experience hard times if it misses a major technological innovation. Meanwhile, the diversification of the group can help to mitigate such threat. The main issue here is that Toshiba not only had low incomes but tried to hide this weakness with fraudulent use of the “percentage-of-completion” accounting method, which is relevant for long term projects. The violation of the principles of this method lies in the estimation of progress toward completion of the projects, as it “implies the ongoing recognition of revenue and income related to longer-term projects”². Such a method requires a good ability of the firm to estimate the gains and losses related to every stage of completion, and to assess the remaining costs to complete the project in every fiscal year.

These irregularities took place during the 2008-2014 period and involved a 2 billion USD global amount. Moreover, the top management of Toshiba forced the executives to act fraudulently and the accounting audit did not unveil these wrong reports and the earnings’ artificial inflation. The goal of the overstatement of profits was not only the refusal to announce losses, but also to win new major contracts.

Such a governance scandal is all the more negative for the firm reputation that, as mentioned in the concluding remarks of the independent Investigation Report (2015), Toshiba “became a ‘company with committees, etc.’ (*iinkai-to secchi kaisha*) early on, and has been recognized as a front runner in (...) having an advanced corporate governance structure”. Because of this betrayal of trust, a 143 year-old successful company thus became a foil and a shame instead of a model.

2.2 The auditing failure

As for the auditor, Ernst&Young (EY) ShinNihon LLC has been built through several mergers and acquisitions since its establishment in 1967 (see appendix 1), and had 6250 employees and more than 4000 customers in July 2017. Interestingly, this prominent auditing company became a limited liability company (LLC) in 2008, i.e. just when Toshiba began its frauds. In a LLC the members of the company cannot be held personally liable for the company’s liabilities, and it mixes the features of a corporation and a partnership (considering the taxation of its members, as losses can be used to offset other income). It is worth to mention that an LLC is “easier to set up than a corporation, and it provides more flexibility”, but the “creditors may be able to pierce the corporate veil of an LLC in case of fraud or when legal and reporting requirements haven’t been met”³. Rahman and Bremer (2016) even suggested that “it is likely that the auditor cooperated in hiding the scandal”.

² <https://www.accountingtools.com/articles/2017/5/15/percentage-of-completion-method>

³ http://www.investopedia.com/terms/l/limited_company.asp

On 22nd December 2015, Japan's financial regulator fined the audit company 2.1 billion yens after its poor auditing of Toshiba accounts. This amount is close to two years of auditing fees paid by Toshiba. As for the auditing fees, they are far lower in Japan compared with the United Kingdom and the United States, with respectively 3.2, 5.3 and 11.8 basis point of turnover, while the international average is 5.6 basis point⁴. Toshiba's fees are even lower than the Japanese average, as the company paid EY ShinNihon only 1.5 basis point of its turnover. Nevertheless, Toshiba considered that such fees were "appropriate", and stated that the very value of this remuneration was not an issue of the auditing process seeing that the company received a "necessary and sufficient audit".

Moreover, the Financial Services Agency (FSA) suspended Ernst & Young ShinNihon LLC from accepting new engagements during the first three months of 2016. Toshiba indicated at the same time that it would not renew its auditing contract with this company for the fiscal year starting in April 2016⁵ and it chose to be audited by PricewaterhouseCoopers (PwC) Arata. The FSA explained its decision by the "negligence of due care"⁶ of the financial statements of Toshiba Corporation for fiscal years 2009, 2011 and 2012. It is also worth to mention that the FSA issued an administrative order to suspend certified public accountants who are partners of the firm, from providing services for 1, 3 or 6 months.

Such a major financial scandal reminds the Enron debacle in 2001, and in 2002 Arthur Andersen, one of the former "Big five" of the world auditing sector, which hid accounting information about this firm to some extent. It is rather funny to mention that after the Arthur Andersen auditing failure, the American Institute of Certified Public Accountant reported on February 2002 that Ernst & Young indicated that "no client is too big to say 'no'" (Zulauf and Grierson, 2002).

More recently, in 2009 the Indian leader of computer services Satyam, was responsible for data theft and staff bribery. Enron collapsed in 2001, and Satyam merged with Mahindra in 2009, which is not the case of Toshiba, but some common features can be pointed out. Indeed, the major issue was also related to financial reporting, disclosure, and the role of Enron's board of directors and top management. The other common characteristics are that the scandal implied an auditing major group, considered as innovative in its business. The betrayal was all the more painful that Enron put forward four values, i.e. communication, respect, integrity and excellence (Lundblad and Berger Davidson, 2003); in the same way as Toshiba mentions in its website and communication documents that it is "Committed to people, committed to the future", and wants to "serve the needs of all people, especially our customers, shareholders and employees". The group also adds that "managers provide leadership, inspiration and strategic direction, cultivate our organizational power (...) to realize sustainable, sound growth and profit"⁷.

⁴ <http://www.reuters.com/article/us-toshiba-accounting-auditor-idUSKCN0Q32OY20150729>

⁵ <http://www.reuters.com/article/us-toshiba-accounting-ernst-idUSKBN0U505S20151222>

⁶ <http://www.fsa.go.jp/en/news/2015/20151222-2.html>

⁷ <https://www.toshiba.co.jp/worldwide/about/commitment/vision.html>

3. Toshiba's financial key facts and Tokyo Stock Exchange listing department reactions

3.1 The recent timeline

In order to assess the stock valuation's consequences of major events during a long timespan, we selected some key dates of Toshiba's recent activities that may have impacted its stock volatility during the last 35 years. The events that have potential industrial or financial or strategic consequences on the group's businesses are the following ones. While we mainly consider microeconomic events that directly affect the company, we also take into account some more macroeconomic events such as the Fukushima disaster.

-22nd June 1987: Toshiba and the Norwegian firm Kongsberg Vaapenfabrikk exported sensitive military equipment to the former Soviet Union while the cold war was not over. The issue is that the machineries sold gave the technical possibility to the USSR to build quieter submarine propellers, making submarines more difficult to detect⁸. Obviously, this industrial and military scandal was a bad news.

-29th October 1999: Toshiba agreed to a \$2.1 billion settlement after having sold more than 5 million defective laptops in the United States. The technical issue concerned the semiconductor chips which control the floppy-disk drives. After a six month-class action in Texas, the group also said it would give customers some cash rebates and free products⁹. This was really bad news seeing that the competition is fierce in this industry on a worldwide scale.

-16th October 2006: acquisition of Westinghouse Electric Company for \$5.4 billion was completed, with Toshiba obtaining a 77% shares. Considering the growth expectations and the industrial anticipated synergies, this was considered as good news.

-11th March 2011: Fukushima catastrophe including a major earthquake, a tsunami on the Tohoku shores and the largest nuclear accident ever experienced in Japan. There is no need to mention how awful was this event.

-19th May 2011: Toshiba acquires Landis+Gyr for 2.3 billion USD. In the same way as the acquisition of Westinghouse in 2006, this was seen as good news with positive business forecasts.

-21st July 2015: Toshiba Corp chief executive and President Hisao Tanaka steps down after the group admitted overstating its profits by more than 150 billion yens between 2008 and 2014, and the Investigation Committee concluded that Toshiba reported false profits on 20th July 2015. This was one of the major bad news of the Toshiba long term scandal.

-15th March, 2016: the group published an "Improvement plan and situation report" six months after its stocks were labelled as securities on alert. This plan referred to the Principles of companies in scandal issued by the Japan Stock Exchange Regulation. The plan includes better practices such as clarification of responsibilities, strengthening of monitoring, reviewing the chain of command for financial accounting, or enhancing

⁸ Source: New York Times

⁹ Source: <https://www.zdnet.com/article/toshiba-to-pay-2b-settlement-on-laptops/>

the information disclosure¹⁰. In order to promote organizational reforms, the group also set up the “Toshiba rebuilding initiative” in December 2015, while the net income of the company dropped at the end of 2015 fiscal year from -37.8 billion of yens to -460 billion one year later. This news was supposed to be good, as it showed the way of a safer management and the end of the financial scandal.

-29th March 2017: Toshiba approves the file for chapter 11 bankrupt of Westinghouse, which exhibits a 9.8 billion USD debt. This is the most difficult event to assess, as it can be seen as both a good and a bad news. The investors may have been scared by such large debt and by the losses Toshiba had to bear. Meanwhile they were probably relieved to know that this financial nightmare was over for Toshiba.

-18th July 2017: A news is reported by Toshiba, concerning the amicable settlement of a dispute with SanDisk, a subsidiary of WesternDigital. In short, WesternDigital did not win its case in the California court and Toshiba is entitled to continue its activities and conclude contracts, even before the signing of the amicable agreement with WesternDigital, expected 10 days later¹¹. In addition, on July 19, 2017, the San Francisco Court of Appeal authorized Toshiba to continue to protect its data and intellectual property against Western Digital¹². Therefore, this event is a good news.

-1st August 2017: Toshiba share is demoted to the second ranks of the Tokyo Stock Exchange (TSE), and it is replaced by Seiko Epson in the Nikkei 225 index. This kind of news is obviously bad, but as it is usually anticipated by the market weeks before its official announcement, it is difficult to assess at that date.

-1st June 2018: Toshiba spun off its lucrative semiconductor Toshiba Memory subsidiary under a 2 trillion-yen (\$18.3 billion) deal, but will keep 51.1 of the voting rights. This earning is expected to help the group to re-enter the TSE 1st section in the coming three years. Toshiba will still own 33.4 % of the voting rights. Meanwhile, Toshiba now has to be able to create new sources of profits as Toshiba Memory represented 90 % of its operating profits¹³.” As a consequence this is good news for the group.

-13th February 2019 : Toshiba reduced its operating profit forecast for the 2018-2019 fiscal year (from 60, as announced las November, to only 20 billion JPY), because of losses and additional costs related to its semiconductor manufacturing equipment and energy businesses. The profit net earnings of this branch were reduced from 920 billion JPY to 870 billion while the whole group’s net profit is expected to rise 8.2 % thanks to the sale of Toshiba Memory in 2018. According to these recent news, after a 0.6% operating margin (operating profit/sales) this year, Toshiba still hopes to reach more than 4 % for the coming fiscal year (2019-2020), and it even forecasts to reach 8% for fiscal year 2023¹⁴. Thus, whatever the future profits might be, in the short run this was bad news.

¹⁰ 2016 Toshiba Annual report, Operational review, p.8

¹¹ Source : https://www.toshiba.co.jp/about/press/2017_07/pr1801.htm

¹² Source : https://www.toshiba.co.jp/about/ir/en/news/20170719_1.pdf

¹³ Source : <http://www.asahi.com/ajw/articles/AJ201806020030.html>

¹⁴ <https://www.japantimes.co.jp/news/2019/02/13/business/corporate-business/toshiba-cuts-fiscal-2018-profit-outlook-sluggish-semiconductor-sector/>

3.2 The consequences on Toshiba listing in 2017

The group has shown a misbehavior several times in the last decade, and probably during a longer timespan. Indeed, the independent Investigation Committee Report (2015) pointed out long run pressures from the top executives on the employees to hide the true financial situation of the firm after the 2008 financial crisis.

After a long term investigation, the Japanese Securities Exchange and Surveillance Commission concluded in January 2017 that the accounting frauds of the group were done on the instruction of the top executives. Problems were found in all six Toshiba's major divisions, including overruns, construction delays, profit overstating, booking of future profits early or pushing back losses¹⁵.

Considering the Toshiba share listing, the Tokyo Stock Exchange (TSE) designated Toshiba stock "on alert" and imposed a listing agreement violation penalty of 91.2 million yens on 15th September 2015. The company fell under the case where the listed company made a false statement in its securities report, and the TSE pointed out that "the improvement of the internal management system" was required, according to the Securities Listing Regulations, Rule 501, Paragraph 1, Item 2, Sub-item a. Moreover, under the Securities Listing Regulations, Rule 509, Paragraph 1, Item 1, the TSE noticed that "there were matters requiring investigation other than the accounting processing". The Independent Investigation Committee, set up on April 3rd 2015, was expected to complete its investigation by mid July 2015, but postponed its report from 30th June to 31st August 2015, and then to 7th September 2015, for fiscal year end of March 2015. As mentioned by the TSE listing department on 15th September 2015, "these disclosures revealed that the company conducted inappropriate accounting, including postponing the recording of losses from the fiscal year ended March 2009" until 2015, and that the overstatement of the total net income climbed up to 155.2 billion yens. The reason indicated by the TSE for such a misconduct was the "company's excessive pursuit of recording short-term profit (...) difficult to achieve in the course of ordinary business activities. (...) there were actions possibly taken as a result of instruction from the management to the business divisions". The TSE also mentions that the governance was poor and that the management control was aware of the regulation violations: "Even though some directors and audit committee members had knowledge of the beginnings of the inappropriate accounting, the information was not shared". More generally, it is a concern for Japanese market authorities that such a behavior may also impair the confidence of shareholders and investors in the Japanese stock market, and beyond this it may have an impact on the good integration of company information by the market.

Considering the numerous events and news about Toshiba accounts since three decades, we cannot set up a common event study focused on one or two dates, with pre and post-event analysis. Indeed, there is a continuous process of bad news impacting the consolidated accounts of the group as well as its stock price. This is why we focused on a long time period to study both corporate finance and market finance data.

The financial and stock market data come from Toshiba website and the International

¹⁵ <http://www.fraud-magazine.com/current.aspx>, website of the US Association of certified fraud examiners

Factset database. We will analyse the impact of news on the Toshiba group using two complementary approaches. The first will deal with the consequences of fraud on Toshiba's financial ratios over the period 1997-2016. The second will be to analyse the impact of good and bad news on Toshiba's share price for the period 1987-2017.

4. Accounting fraud and financial ratios

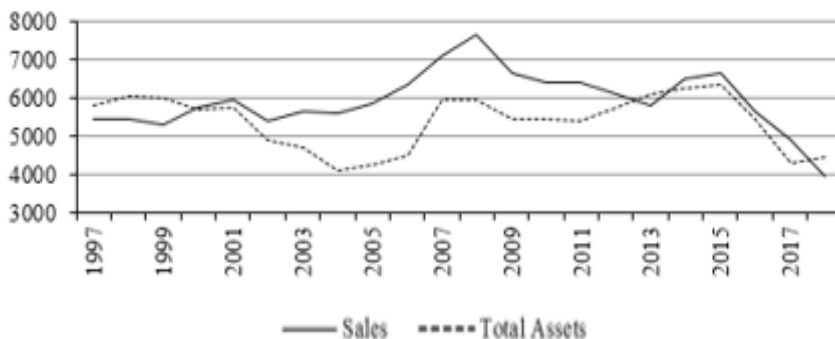
This empirical part includes the main corporate finance features of Toshiba, considering both risk and return indicators, as well as the impacts on the main market ratios of the stock and the share price variations themselves in the long run.

4.1 Corporate finance features

As explained above, the accounting fraud of Toshiba began in 2008 after a historical high and was caused by the pressure of the senior management to hide the poor sales. As a matter of fact, figure 1 shows the sales increase from fiscal year 1997 to 2008 (+40.6%) followed by a 13.2% decline in 2009 and another 26.8% drop between 2009 and 2016. The Earnings Before Interest and Taxes (=EBIT) and net income also exhibited large increases between 1997 and 2008, whereas they became largely negative in 2009 as well as in 2016, with moderate positive values in between. The 2008-2017 period is worse than a "lost decade" for Toshiba, seeing that in 2017 there is no hint of a real business recovery.

Considering the balance sheet of the group, the total assets exhibited in 2015 a value close to its previous level in 2008 and in 1997, before decreasing in fiscal year 2016 and 2017. Such a flat trend shows that overall Toshiba did not create much financial value over the last two decades. In a mature or declining market this would not be a poor achievement, whereas in the fast growing markets where Toshiba operates it questions the confidence investors can put in the growth potential of the firm.

Figure 1. Sales and total assets of Toshiba over the 1997-2017 period

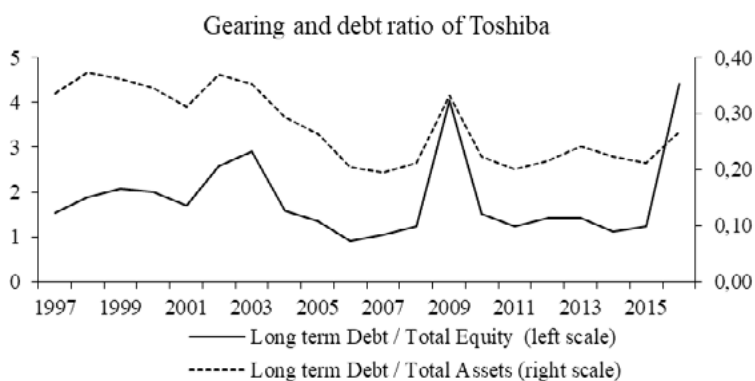


A weak expansion may not be a problem in itself if a company experiences a low risk level and a sufficient return level. Thus, we calculated the debt and return indicators of Toshiba, in order to assess its risk-return equilibrium. Figure 2 presents

two of the most significant debt ratios. First, the total debt ratio (total debt/total assets) shows that the debt level of Toshiba remained moderate during the past 20 years, between 0.20 and 0.37. Unsurprisingly the recent rating of Toshiba debts is poor, as in 2017 its long term debt was rated CCC- by Standard & Poor's, Caa1 by Moody's and B by Rating & Investment Inc. Its short term debt was respectively rated C, Not Prime, and B. The Caa1 rating was issued by Moody's on 28th December 2016, and the market reaction was a 23% drop of the stock price, close to its 21st century lowest price. These speculative grades are the outcome of a long term downgrading process, as Toshiba was rated B2 by Moody's in February 2016, and Baa2 between September 2009 and June 2014 (which was an investment grade rating). In October 2008 Moody's changed Toshiba A3 rating outlook to negative.

Meanwhile, the gearing ratio (long term debt/total equity) indicates the structure of the long term financing and the potential leverage effect of the firm. The higher the gearing, the higher the leverage effect, whether positive or negative. As a moderate gearing ratio is close to 1, we can see that Toshiba has been exhibiting a fairly high to very high gearing during the last 20 years. This means that the firm relies more on debt than on equity to finance its activity. Whereas it is easily understandable when the net income is negative, in case of profits the firm should carefully use them to invest and develop its business. The extremely high gearing in 2009 (4.05) and in 2016 (4.41) has been followed by a negative value in 2107 after a negative net income in fiscal year 2016 and in 2017 (non-significant gearing of -2.18, not shown in the figure). It is worth to mention that the 2009 and 2016 (and 2017 in fact) situations with a historical increase of the gearing above 4 are uncommonly risky for such a large firm. Unsurprisingly, these are the two worst years of the company, with consequences that can still be felt many months after these fiscal years.

Figure 2. Gearing and debt ratio of Toshiba

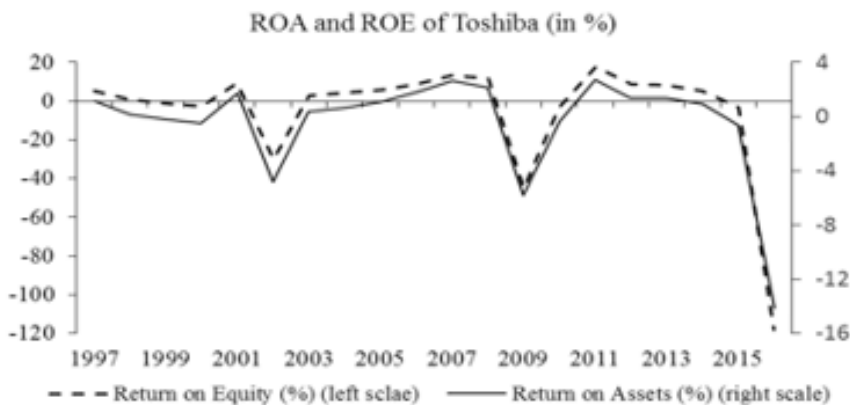


As a consequence, because of its poor net incomes, Toshiba has not benefited from a positive leverage effect in the past years to boost its return, whereas it was impaired by a low economic return, as can be seen in figure 3. As the long term debt level is moderate compared to the total assets, we can conclude that the firm is strongly relying on operating liabilities to finance its short term assets. As Toshiba has a strong

negotiation power with its suppliers, which are mainly included in the Mitsui keiretsu, it can incent them to accept hard commercial conditions and thus improve Toshiba's cash situation.

The comparison of Return On Equity (net income/equity) and Return On Asset (operating income/total assets) confirms the negative leverage effect in 2002, 2009 and 2016. In 2017 (end of the previous fiscal year end in March), both the net income and the shareholders' equity were negative, thus the ROE has not been calculated. Moreover, the long term level of the ROA is weak (between -5.79% in 2009 to 2.70% in 2011), with sharp drops in 2016 (-14.14%) and 2017 (-22.62% for fiscal year ending in March 2017). Considering the ROE, except in 2011 (11.96%), the values never reached the usually required level by the investors in relationship with the risk level of the group, despite the low long term interest rates in Japan, which declined from 2.5% to -0.1% over the analyzed period. Because of the 2002, 2009, 2010, 2015, 2016 and 2017 losses, the ROE exhibited negative values, and the equity became negative in 2017. As mentioned above, these dramatically low values were released 5 months overdue after the end of fiscal year (and of March 2017).

Figure 3. ROA and ROE of Toshiba (in%)



4.2 Impacts on the market valuation ratios

Considering the previous risk and return indicators, the market valuation of Toshiba has been unsurprisingly poor and shaky. Looking at the past values of the price-to-book and price-earnings ratio, we can notice huge variations (figure 4). The price-to-book reflects the comparison between the market and the accounting value of the stock, and the higher it is the more confident the market is in the future development of the firm. This ratio fluctuated between 1.4 and a historical high of 3.4 in 2000, in relationship with the internet bubble. Interestingly, despite the very low book value of the firm in 2016 after its huge losses, the ratio was only 2.81. As the shareholders' equity represented only 6% of the total liabilities, this means that the market valuation of the group reached less than 20% of its total liabilities. As a consequence, the apparently usual values of this ratio hide a real lack of confidence of the investors in Toshiba,

and not only in 2017 where the ratio became negative (not shown in figure 4). If the historical low of 2016 and 2017 was just a short period crisis, the market valuation would have been far higher and this ratio would have climbed to more than 5.

Figure 4. Price-to-book and PER of Toshiba over the 1997-2017 period



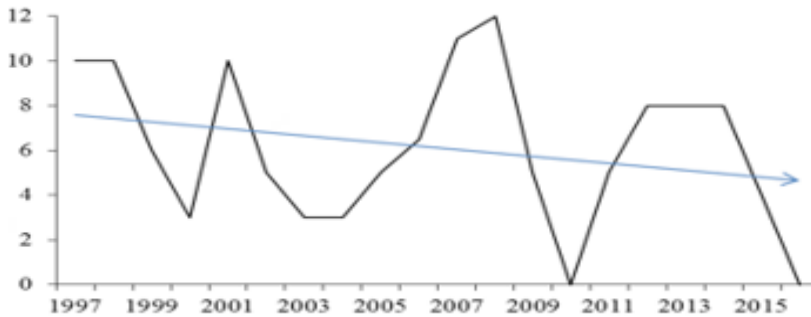
The PER experiences such large changes over the whole period that figure 4 presents only the values under 40 to ease the reading. As the usual PER values are close to 15 or 20, we can notice that Toshiba stock has rarely exhibited such figures. Either the PER was extremely high or it was too low. Its high values were for instance more than 200 in 1998 because of a very small earning per share, and over 50 in 2003 and 2004 for the same reason. Indeed, such values were not related to a high stock price, and did not mean that the market made optimistic income forecasts. At the opposite, when the net income was negative the PER dropped under 0 and is not represented in figure 4 (values are set to 0). Finally, there were few years with a moderate PER (2007, 2008 and 2011 to 2013), which creates much uncertainty and risk for the investors. This underlines the high risk level they had to accept, despite the poor returns.

We can thus wonder whether this uncertainty has been partly compensated by a good dividend yield, with the potential risk of a lack of cash for the firm. As shown by figure 5, the dividends were suspended in 2010, 2016 and 2017, but during the other 17 years out of 21 the company continued to pay dividends. As the dividend yield was always low (under 2% except in 2012), it may indicate a cautious pay-out policy, but the reality is somewhat different. Indeed, despite its low profits and several annual losses, Toshiba continuously paid dividends to its shareholders until 2010, when the company experienced a second consecutive loss after its bad income of 2009, and again until the repeated losses in 2016. This means that after 2008 the company not only disclosed irregular accounts, but it tried to send an optimistic signal to the stock market according to the signalling theory (Ross, 1977). Moreover, the pay-out ratio remained high, even during bad performing years: 34% in 2001 despite a weak income per share, 44% in 2012, 39% in 2013 and up to 62% in 2014, which was far over the average 25% pay-out in Japan during this period¹⁶.

¹⁶ <https://seekingalpha.com/article/2688275-on-the-dividend-payout-ratio-of-japanese-stocks>

As mentioned by Fama and French (1988), the signalling power of dividend yields to indicate future stock returns increase with the forecasting horizon. They explain this result by the increasing effect of return autocorrelation on the value of variance as the timespan gets longer. They also indicate that the effects of unexpected returns or dividends on the price are mitigated by the impact of the discount rate on these future financial flows.

Figure 5. Dividend per share of Toshiba over the 1997-2017 period



Such signals are reliable if they are confirmed by other financial indicators. This was less and less the case, and the pay-out impaired the cash level of the company, which endangered it even more. In the next sub-section we will describe the effects of the scandal on the stock price of the firm.

5. Consequences of news on Toshiba stock prices

5.1 Measuring abnormal returns

Despite major technical breakthroughs, like the NAND flash memory in 1989 or the Solid State Disk in 1991, we did not include these events because their announcements could not be identified with a specific date. Moreover, the scientific innovations are the result of a long process rather than a single decision or event.

The events studied here concern both specific announcements about Toshiba and natural events that have a more global impact, such as the Fukushima disaster.

A significant investor reaction to these announcements can lead to abnormal returns, i.e. differences between the firm's share return and its normal return. We define the normal return as the expected return conditional on a set of information Φ

independent of the event that occurs at date τ , with $R_{\tau}^* = E(R_{\tau} / \Phi_{\tau})$. In other words, if we study the impact of an event over a given period, which we will call the event window, the normal performance will have to be defined on a separate window/estimation period that is not affected by that event. A sufficiently long estimation period is used before the event window.

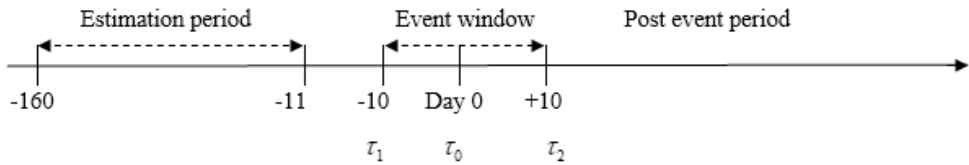
The event window covers periods before and after the event. The pre-event period is justified when information can be disseminated on the markets, which may lead to a price reaction following changes in investors' expectations. After the event, these

same investors will be able to revise their expectations and reallocate the composition of their portfolios accordingly. If there is no procedure to define optimally the event window, it must be long enough to understand the market's reaction to the information. In a study of 600 ads for 30 Dow Jones Industrial Index companies over the period January 1989 to December 1993, MacKinlay (1997) used a 41-day, 20-day before and 20-day after announcement window and a 120-day before this event period for normal return estimation.

Here we consider that 10 days before and 10 days after the event date, i.e. a 21-day window, are sufficient to account for the effects of announcements. This relatively short window is justified because as Fama (1998 p. 283) notes: "The assumption in studies that focus on short return windows is that any lag in the response of prices to an event is short-lived".

For the estimation of the normal return, a period of 150 days is used as shown in the figure 1.

Figure 1. Time line for event analysis



The abnormal return is the difference between the observed performance R_t of the stock on a given date t and the expected or normal performance R_t^* for that same date. The stock return is $R_t = \ln(S_t / S_{t-1})$, with S the stock price, and the abnormal return for an e event on event window is $AR_{e,\tau} = R_{e,\tau} - R_{e,\tau}^*$.

There are generally two models that can be used to estimate normal (expected) return. The first and simplest approach is to use a constant average return (noted \bar{R}) over the estimation period, i.e.

$$\begin{aligned} R_t &= \mu + \zeta_t \\ E(\zeta_t) &= 0 \\ \text{var}(\zeta_t) &= \sigma_\zeta^2 \end{aligned} \quad (1)$$

with $t = -160, \dots, -11$ and ζ a stochastic error term with an expected mean of zero and a constant variance. The abnormal return is:

$$AR_{e,\tau} = R_{e,\tau} - \bar{R} \quad (2)$$

The second approach is based on a market model. This model relates the security's

performance to the performance of the market portfolio¹⁷, noted R_m . We retain a linear relationship and the market model is based on Sharpe (1964) well-known Capital Asset Pricing Model, with β representing the sensitivity of the stock return to the market portfolio return:

$$\begin{aligned} R_t &= \alpha + \beta.R_{m,t} + \varepsilon_t \\ E(\varepsilon_t) &= 0 \end{aligned} \quad (3)$$

$$\text{var}(\varepsilon_t) = \sigma_\varepsilon^2$$

with ε an error term of zero mean and constant variance.

Therefore, the normal/expected return is

$$R_t^* = \hat{R}_t = \hat{\alpha} + \hat{\beta}.R_{m,t} \quad (4)$$

The symbol (^) represents estimated coefficients and α , β are estimated with 150 daily returns. We consider the stability of the pre-event model for the event period. Thus, the estimated abnormal yield () for each period of the event window will be:

$$\square AR_{e,\tau} = R_{e,\tau} - \hat{\alpha} - \hat{\beta}.R_{m,e,\tau} \quad (5)$$

A third and even simpler form of the model is to define abnormal performance as the difference between stock performance and market performance by τ . In practice, the Nikkei 225's performance is used as an indicator of the market portfolio's performance. However, as MacKinlay (1997 p.18) points out, "*The benefit from using the market model will depend upon the R^2 of the market model regression. The higher the R^2 the greater is the variance reduction of the abnormal return, and the larger is the gain*".

To investigate abnormal returns, it is necessary to accumulate them on the event window. The estimated cumulative abnormal return (CAR) is:

$$CAR_e(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{e,\tau} \quad (6)$$

where AR is respectively calculated from the constant average return (equation 2), the market model return (equation 3) and the Nikkei 225 performance.

5.2 Plots of cumulative abnormal returns

The financial and stock market data come from Toshiba website and the International Factset database. For each date of the event window, the abnormal return is calculated and then we deduce the cumulative abnormal returns over the entire event window, according to the relationship (6). In a second step, the average cumulative return ($ACAR$) for each date τ is calculated as:

$$ACAR\tau = \frac{1}{Ne} \sum_{e=1}^{Ne} CAR_{e,\tau} \quad (7)$$

With Ne represents the number of e events, $e=1, \dots, N$.

Events are represented by either good news, or bad news. However, how to discriminate between bad and good news? There are two ways to approach the question.

¹⁷ We are interested here in a one-factor model. Other multifactor models can be used. See among others Ziobrowski et al. (2004).

Either we look at the effects of a news item or we qualify it ex-post as bad or good depending on the response of the stock price. For example, by studying the responses of the dollar exchange rate, Laakkonen and Lanne (2009 p.8) classify news as positive (good) if the announcement effect produces an appreciation of the dollar and negative (bad) if it results in a depreciation.

Either one is interested a priori/ex-ante in the nature of the news and on the basis of the anticipated effects it is considered as bad or good. In a certain way, news are classified according to expectations, the expected effects of the dissemination of information. For example, if we consider firm-specific information, announcements of acquisitions, conflict resolution or improvements in economic and financial performance will be classified as good news. In contrast, news revealing a drop in performance, a downgrading of the rating by the agencies, the resignation of executives following a scandal or a global shock of extreme violence such as the Fukushima disaster will be considered a priori as bad news.

By focusing mainly on specific-firms information and aggregating the effects on returns for different periods, we do not explicitly take into account the state of the market and avoid the difficulties that could result. Indeed, if investors are uncertain about the state of the market, responses to good and bad news may be asymmetric (Conrad et al 2002, p.2508). Thus, a good news will have little effect on a market that has been performing well for a relatively long period. On the contrary, if the state of the market is bad the same news will increase the probability that the state of the market will improve significantly. On the other hand, a bad news will strongly degrade a bull market while it may have little effect on a strongly degraded market. In other words, we analyze the aggregate effects of news considered ex-ante as either good or bad, whatever the state of the market.

According these criterions, we retain five bad news and five good news. The table 1 gives details of each news. If the news are considered as good (respectively bad) the stock market should anticipate a future increase (resp. decrease) of the sales and profits of Toshiba and thus the stock price should lead to abnormal positive (resp. negative) returns.

Table 1. Classification of the news

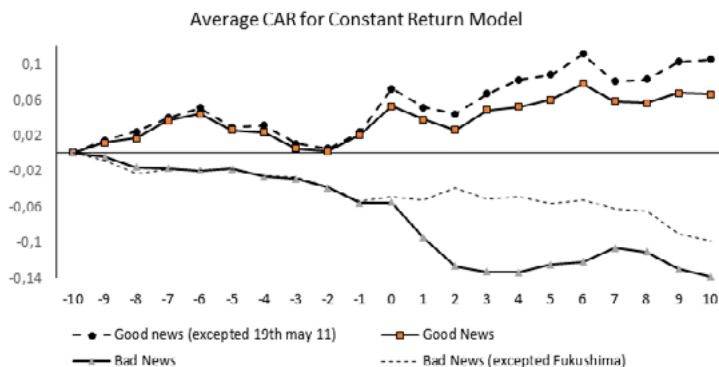
Good news	Bad news
<ul style="list-style-type: none"> • 16th October 2006 (acquisition of Westinghouse) • 19th May 2011 (acquisition of Landis+Gyr) • 15th March, 2016 (publication of an improvement plan after scandal) • 1st June 2018 (spin off of lucrative semiconductor subsidiary) • 18^h July 2017 (amicable settlement of the dispute with SanDisk) 	<ul style="list-style-type: none"> • 22nd June 1987 (military security scandal) • 29th October 1999 (industrial drawback) • 11th March 2011 (Fukushima catastrophe, as TEPCO is an industrial partner) • 21st July 2015 (president Hisao Tanaka steps down) • 13th February 2019 (downgrading of group's operating profit forecast)

The following figures show the average cumulative returns curves for good and bad news. We did not include two events for which the interpretation was more complex. First, on 29th March 2017 the Chapter 11 bankrupt for Westinghouse can be seen as bad news for this subsidiary, but also as good news for Toshiba. Indeed, this event meant that the group would not have to suffer from the losses from its US subsidiary anymore. As a matter of fact, the market seemed to be relieved by the end of this costly acquisition 11 years before.

Second, considering the 1st August 2017, the bad news of the delisting of Toshiba from the First section of the Tokyo Stock Exchange was an information the investors had integrated weeks before. Thus, it was no surprise at that date, but only a confirmation, and may be a relief, after a long series of warnings and alerts from the market authorities since nearly one year (the first serious warning happened in September 2016). And there was even some speculation, as the Japan Times indicated on the 1st August 2017 : “*At the TSE on Monday, Toshiba’s last trading day on the first section, it ended at ¥246.00, up ¥6.80, or 2.8 percent, from Friday on speculative buying aimed at obtaining short-term profits*”¹⁸. Moreover, on Toshiba website, there is nothing about this in the press releases on 1st August 2017, but on the 3rd August the company mentions an investment announcement of 195 billion yens in the Toshiba Memory subsidiary on flash memories¹⁹. Finally, on 10th August Toshiba presented, after 2 months delay, both its very bad results of fiscal year 2016-2017 (ending in March 2017), which were already anticipated by the market after such a long wait²⁰, and its slightly better results for the first semester of 2017²¹. Then the future seemed a little more attractive for the investors.

Figures 1 to 3 show the average of cumulative abnormal return from the market model return for good and bad news.

Figure 1. Daily Cumulative Abnormal Returns for constant return model



¹⁸ Source : <https://www.japantimes.co.jp/news/2017/08/01/business/corporate-business/toshiba-shares-demoted-first-section-tokyo-stock-exchange/>

¹⁹ Source : https://www.toshiba.co.jp/about/ir/en/news/20170803_1.pdf

²⁰ Source : <https://www.toshiba.co.jp/about/ir/en/finance/er/er2016/q4/ter2016q4e.pdf>

²¹ Source : <https://www.toshiba.co.jp/about/ir/en/finance/er/er2017/q1/ter2017q1e.pdf>

Figure 2. Daily Cumulative Abnormal Returns for market model

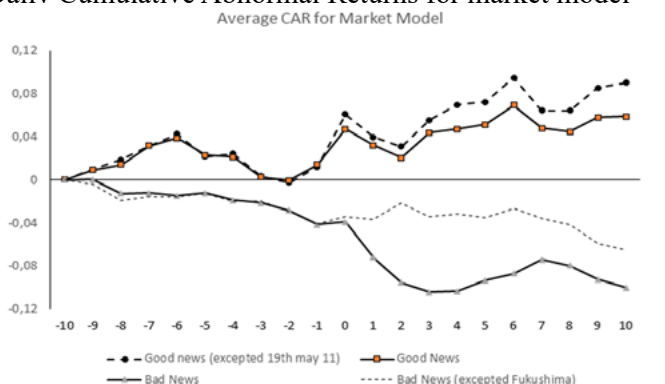
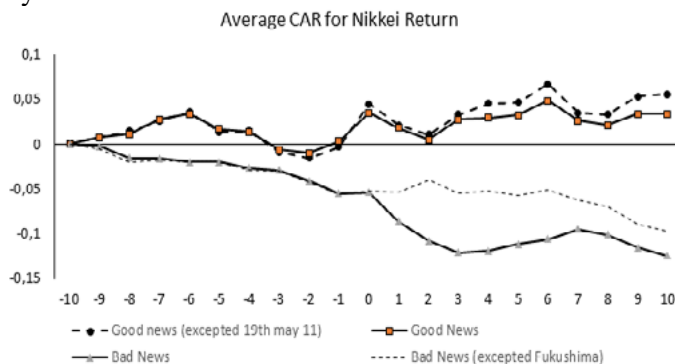


Figure 3. Daily Cumulative Abnormal Returns for Nikkei return model



We can notice that for both good and bad news the CAR changes were fairly similar for the three of them, which indicates that the three methodologies provide convergent results. The largest CAR was not always the same, depending on the pre-event Toshiba prices and the Nikkei 225 values and general market conditions. The three figures exhibit positive reactions of the market to good news and negative returns after bad news. This shows that the market is fairly efficient according to the semi-strong form (Fama et al., 1989). Meanwhile, one single event may highly influence the results, as the Fukushima event did. For instance, in all figures, the market reaction to bad news is not so negative if this very particular event is removed. In the same way, if the supposedly positive event of the acquisition of Landis+Gyr on 19th May 2011 is removed, the returns of Toshiba stock are higher according to all calculation methods for CAR.

Table 1. Comparison of the three CAR calculation methods

	Strengths	Weaknesses
CAR1	Simple and straightforward	Less significant if Toshiba experiences another shock during the [-160 ; -11] period

	Strengths	Weaknesses
CAR2	Simple and straightforward	Less significant if some macro-economic factors did influence the Nikkei and not Toshiba during the [-160 ; -11] period
CAR3	Close to the CAPM logic	One single factor (Nikkei index) is insufficient to explain Toshiba returns ($R^2=0.02$ for example)

The differences between the three CAR (table 1) depend highly on the price changes of Toshiba and the Nikkei 225 over the 5 pre-event months (for CAR1 and CAR3, see equation 2), and mainly on the macro-economic events impacting the index during the event period (for CAR2, see equation 5).

5.3 Volatility-return relationship

To compute volatility, we use daily prices P_t and returns R_t . If $R_t = 100 \cdot \ln(P_t/P_{t-1})$, then $R_t = \mu + \varepsilon_t$, for which μ is the average of R_t , conditional on past information ψ_{t-1} . Before estimating the GARCH model (Bollerslev, 1986; Engle, 1982), we test for the presence of ARCH effects in the residuals ε_t of the stock return model. With a null hypothesis of no ARCH effects, the statistic test is $M = T \cdot R^2 \sim \chi^2(p)$, where T is the sample size (here $T=8032$ observations), and R^2 is computed on the basis of an $AR(p)$ process for ε_t^2 . Considering the ARCH effects, with a 10-day lag, Table 2 exhibits significant values. The $T \cdot R^2$ and F -statistics are significant at the 0.1% error level, indicating that the null hypothesis (i.e., no ARCH effect) can be rejected.

Table 2. ARCH effect test

Toshiba Stock Return				
Lags	$M = T \cdot R^2$	p-value	F -Statistic	p-value
10	36.6041	0.0001	3.6713	0.0001

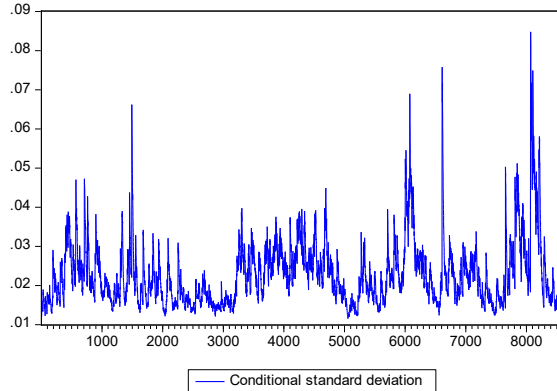
Furthermore, volatility σ can be computed with the standard deviation of daily returns in a GARCH model, defined by $\sigma = \sqrt{h}$, where h is the conditional variance derived from GARCH(1,1), such as:

$$h_t = \delta + \alpha \cdot \varepsilon_{t-1}^2 + \beta \cdot h_{t-1} \quad (1)$$

where $\delta > 0$, $\alpha \geq 0$, and $\beta \geq 0$, because these conditions are sufficient to ensure a positive h_t . Then ε_t is the residual of an underlying process for a set of information

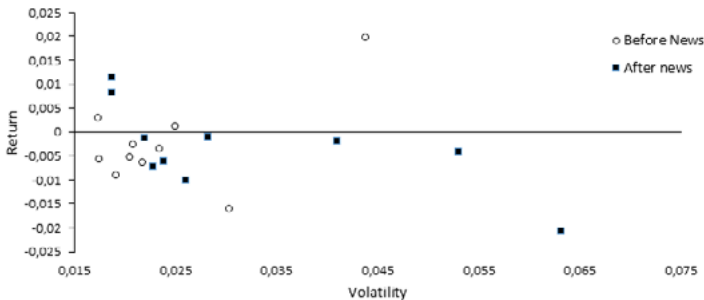
ψ , such that $\varepsilon_t / \Psi_{t-1} \sim N(0, h_t)$, so it is a weak white noise (implying a constant, finite variance). Unconditional expected variance exists when the process is covariance stationary, that is $\alpha + \beta < 1$ ²². Figure 4 provides the volatility over the period 1985-2019.

Figure 4. Volatility of Toshiba stock 1985-2019



The stock prices variations are naturally affected by the macro-economic conditions, and figure 4 shows that for Toshiba some volatility peaks are clear in 2008 during the subprimes crisis (days 6000 to 6200) and in 2011 during the Fukushima disaster (days 6600 to 6700). Another volatility factor is related to the portfolio adjustment of large Japanese or international investors and shareholders, such as pension funds, banks and insurance companies. Some of these investors may have been progressively less confident in Toshiba's future activities and profits, and they could have rebalanced their portfolios while underweighting this firm or its industry, or even underweighting Japan vs. Korea or China, as these countries may experience a larger growth than Japan in the future.

Figure 5. presents the relationship between volatility and return, ten days before (average on 10 days) and ten days (average on 10 days) after each news.



²² The estimate of equation 1 is; $h_t = 8.10^{-6} + 0.0713\varepsilon_{t-1}^2 + 0.9168h_{t-1}$ with all coefficients statistically different of zero at the 1% error level.

Before the events the volatilities are generally lower, which shows that everything has not been anticipated by the market (no insider trading or predictability of events, especially for Fukushima). The event is quickly integrated by the market, but it is logical that a temporary higher momentum of prices is noticeable on a few days after the event. Regarding profitability, it is on average the same before and after the event, which can be explained by the mix of good and bad news in our set of observations. In terms of informational efficiency the volatility was expected to rise, and it probably went down again after the observation window. It would have been embarrassing for the market efficiency if after the event there had been a big difference in profitability in the same direction for all events, because that would have meant that the market could not distinguish between good and bad news. Eventually, except for the Fukushima earthquake and accident, one single event is not too influential in Toshiba's risk/profitability balance on the market, and the memory of the event does not persist for too long. Overall, volatility appears as lower before the news, except for March 2016.

6. Conclusion

Considering the informational efficiency, this study focused on the stock price reaction of Toshiba after major events during the last 35 years. These events included important industrial acquisitions, one military scandal, a recent financial fraud and the environmental and energy Fukushima catastrophe. The leading position of this Japanese group and its worldwide activities, it was interesting to study the investors' reaction to announcements that may widely improve or impair its future activities. Our results show that the distinction between good and bad news is sometimes tricky, as the market may have anticipated the event. Meanwhile, on average there is a positive market reaction on Toshiba stock price after good news and negative returns after bad news. Moreover, we noticed that there is no influence of the choice of the cumulative abnormal return method on our conclusions. Finally, the econometric analysis indicates that the volatility of Toshiba stock price is generally lower before the events, whether good or bad, which shows that in most cases the announcements were not anticipated. We can also add that except for the Fukushima accident, we can see that one single major event does not strongly influence the results. As a consequence, the information is quickly integrated by the stock market and the semi-strong form of efficiency cannot be rejected for this company.

Abbreviations

EBIT: Earnings Before Interest and Taxes

EY: Ernst&Young

FSA: Financial Services Agency

PER: Price Earning Ratio

PwC: PricewaterhouseCoopers

ROA: Return On Asset

ROE: Return On Equity

SESC: Securities and Exchange Surveillance Commission

TEPCO: Tokyo Electric Power Company**Funding**

Not applicable

Availability of data and materials

The data for the variables of this study were extracted from the International Financial Statistics (International Monetary Fund) and from the International Factset database.

Authors' contribution

SN provides the ideas of this paper and collected the data. SN and SR carried out the empirical work in parallel and each wrote a part of the article. Both authors read and approved the final manuscript.

Appendix 1**History of Ernst & Young ShinNihon LLC**

-January 1967: Tetsuzo Ota & Co. established

-December 1969: Showa Audit Corporation established

-October 1985: Tetsuzo Ota & Co. merged with Showa Audit Corporation to create Showa Ota & Co.

-January 1986: Century Audit Corporation established

-April 2000: Showa Ota & Co. merged with Century Audit Corporation to create Century Ota Showa & Co.

-July 2001: Century Ota Showa & Co. changed its name into Shin Nihon & Co.

-April 2004: Shin Nihon & Co. became a member of Ernst & Young, and changed its name into Ernst & Young ShinNihon

-July 2008: Ernst & Young ShinNihon changed its name and form of incorporation into Ernst & Young ShinNihon LLC

Source: Ernst & Young ShinNihon LLC website

Appendix 1:**Table A1.** Market model regression

Event	Coefficient of Nikkei	Constant	R²
22 th June 1987	1.2287*** (0.00)	-0.0023 (0.28)	0.1705
29 th October 1999	1.0169*** (0.00)	-0.0016 (0.33)	0.3243
16 th October 2006	0.9368*** (0.00)	0.0009 (0.33)	0.4809

11 th March 2011	0.8694*** (0.00)	0.0003 (0.75)	0.4260
19 th May 2011	1.5764*** (0.00)	9.10 ⁻⁶ (0.99)	0.6823
21 st July 2015	0.5341*** (0.00)	-0.0019 (0.23)	0.0657
15 th March 2016	0.9875*** (0.00)	-0.0037 (0.11)	0.2933
29 th March 2017	1.1564*** (0.00)	-0.0026 (0.45)	0.0817
1 st August 2017	0.8959* (0.09)	-0.0051 (0.23)	0.0186
1 st June 2018	0.6276*** (0.00)	-0.0009 (0.58)	0.1161
13 th February 2019	0.6422*** (0.00)	0.0004 (0.79)	0.1548

***, * indicate significance at 1% and 10% levels, respectively.

References

- Alexander C, Lazar E, Stanescu S (2013), Forecasting VaR using analytic higher moments for GARCH processes, *International Review of Financial Analysis*, 30: 36-45.
- Conrad J, Cornelli B, Landsman W (2002), When Is Bad News Really Bad News? *The Journal of Finance*, 17(6): 2507-2532.
- Fama EF (1998), Market Efficiency, Long-Term Returns, and Behavioral Finance, *Journal of financial economics*, 49: 283-306.
- Fama EF, Fisher L, Jensen MC and Roll R (1969), The Adjustment of Stock Prices to New Information, *International Economic Review*, 10(1): 1-21.
- Fama EF, French KR (1988) Dividend Yields and Expected Stock Returns, *Journal of Financial Economics*, 22(1): 3-25.
- Jaussaud J, Nivoix S, Rey S (2015), The Great East Japan Earthquake and stock price", *Economic Bulletin*, 35(2): 1237-1261.
- Investigation report, Independent Investigation Committee for Toshiba Corporation, 20 July 2015.
- Laakkonen H, Lanne M (2009) Asymmetric News Effects on Exchange Rate Volatility: Good vs. Bad News in Good vs. Bad Times, *Studies in Nonlinear Dynamics & Econometrics*, 14(1): 1-38
- Lundblad H, Berger Davidson N (2003,) Enron/Off: A Morality Play in Three Acts, *International Business & Economics Research Journal*, 2(3): 105-119.

-
- MacKinlay AC (1997), The Event Studies in Economics and Finance, *Journal of Economic Literature*, 35: 13-39.
- Narayan PK, Liu R (2018), A new GARCH model with higher moments for stock return predictability, *Journal of International Financial Markets, Institutions and Money*, 56: 93-103
- OECD (2017), Japan – Economic forecast, June 2017
- Rahman KM, Bremer M (2016), Accounting irregularities at Toshiba: An Inquiry into the Nature and Causes of the Problem and its Impact on Corporate Governance in Japan, *Global Advanced Research Journal of Management and Business Studies*, 5(4): 88-101.
- Rey S, Nivoix S (2018), [Dynamics of Tokyo Electric Power Company and the Nikkei: 1985 to 2016 including the Fukushima disaster](https://doi.org/10.11130/jei.2018.33.1.979), *Journal of Economic Integration* 33(1): 979-1010. DOI: <https://doi.org/10.11130/jei.2018.33.1.979>
- Ross SA (1977), The Determination of Financial Structure: The Incentive-Signalling Approach, *The Bell Journal of Economics*, 8(1): 23-40.
- Sharpe, W.F. (1964), “Capital Asset Prices: a theory of equilibrium under conditions of risk”, *Journal of Finance*, 19(3): 425-442.
- Ziobrowski, A.J., Cheng, P., Boyd, J.W. and B.J. Ziobrowski (2004), “Abnormal Returns from the Common Stock Investments of the U.S. Senate”, *Journal of financial and quantitative analysis*, 39(4): 661-676
- Zulauf L, Grierson P (2002), Enron: The Good, The Bad, The Lessons, *International Business & Economics Research Journal*, 1(11): 49-67.

Volume 27 · Number 1 · Winter 2020

Journal Transition Studies Review

Editor: G. Dominese

Co-Editors: W. de Vivanco, B. Cerović, T. Muravska,
M. Florio, S. Miani, Z.Zhao, O. Rogach

PAPERS

*Dual Technologies Sectors Innovation and Growth Civil and Defence Industries
in Europe versus U.S. and China*

Giorgio Dominese

Poverty and Uneven Distribution of Income and Wealth: World and Armenia

Mariam A. Voskanyan

*Public sector accounting in transition:
Changing frameworks and practices among Italian public nursing homes*

Alessandro Lombroso • Silvia Iacuzzi • Andrea Garlatti

*The Realization of the Right to Work in the Republic of Belarus In the Context of International Labour
Standards: Issues and Prospects*

Kirill Tomashevski

Competitiveness of Travel and Tourism Sector in Greece and Ukraine: Comparative Analysis

Konstantina Darvidou • Evangelos Siskos • Olexsandr Rogach

Panda bonds: opportunity or threat for Europe?

Patrizia Stucchi

Fintech revolution in transition countries – remittances and mobile money

Cristina Prochazkova Ilmilchi

Economic Transition in Algeria: A Review

Abdelkader Nouibat

OPINIONS

Ménage à trois

Fernando Ayala

Rules for Authors of *Journal of Transition Studies Review* are available at www.transitionacademiapress.org



Transition Academia Press
www.transitionacademiapress.org

ISSN Print Edition 1614-4007

ISSN e-Journal 1614-4015

Does Tax Avoidance Diminish Firms' Sustainability?

Chika Saka* • Tomoki Oshika** • Masayuki Jimichi***

Abstract Firm tax avoidance has gathered substantial public attention in both the real world and academic literature. Stakeholder theory suggests that firms need to maintain good relationships with all firm stakeholders to be sustainable. Although it makes the firm profitable (i.e., higher net income after tax) in the short run, tax avoidance may diminish the sustainability of firms. We thus examine the relationship between tax avoidance and sustainability. First, we find that

on the specific charts we draw, the location parameters of sustainable firms are clearly greater than those of others. Second, we examine the relationship between firm tax avoidance and financial sustainability using the LOGIT model and find that the effective tax rates (ETRs) of the firms are tied with their sustainability. Our results indicate that tax avoidance diminishes sustainability.

Keywords: Tax avoidance; Sustainability; Effective tax rates (ETRs); Statutory tax rate.

JEL Classification: C55; G15; M14.

1. INTRODUCTION

The Panama Papers and *the Paradise Papers* reveal shocking findings of corruption and tax avoidance. Since tax constitutes the backbone of governmental finance, rampant tax avoidance is so toxic that the related country is virtually at stake. Using tax payment records from tax authorities for more than 20 countries, Piketty approaches the issue from a long-term perspective and presents some economic principles (e.g., rate of return on capital $>$ growth rate) in his book *Capital in the Twenty-First Century* (Piketty, 2014). While Piketty (2014) deals with individual-centric big data, we deal with financial big data from firms and find an economic consequence of tax avoidance.

If tax avoidance is ubiquitous around the world and has existed for many years, what are the economic consequences for firms? If a firm engages in tax avoidance actions, it may obtain benefits in the short term; however, it may bring potential

Chika Saka (✉)*, Tomoki Oshika**, Masayuki Jimichi***

*Kwansei Gakuin University

e-mail : chika@kwansei.ac.jp

**Waseda University, Japan

***Kwansei Gakuin University, Japan

harm to the company's reputation as many multinational firms have been recently criticized for their tax avoidance. According to stakeholder theory (Freeman, 2004; Freeman *et al.*, 2004), firms must take care of their stakeholders as they are vital to the organization's survival and success. The government, which collects taxes, is one of the stakeholders, thus, a firm's choice regarding whether to engage in tax avoidance actions may be tied to their economic consequences; that is, the firm's sustainability.

To answer this question, to obtain the evidence of the probability of firms' tax avoidance (Saka *et al.*, 2019), the difference of the degrees of tax avoidance between sustainable firms and other firms is examined using two visualization methods. First, we examine the distribution (i.e., histograms) of the effective tax rates (ETRs) of sustainable and non-sustainable firms and find that the ETRs of the sustainable firms tend to distribute more in the higher locations compared to non-sustainable firms. Second, we examine the time trend of ETRs for 20 years and find that the higher ETRs of the sustainable firms have lasted for the long term.

After confirming the difference, we analyze if ETRs are tied with sustainability, using the LOGIT model, as our third analysis. Since tax payment is a civic duty (David and Gallego, 2009), and a firm has a societal obligation to pay its fair share of taxes (Lanis and Richardson, 2015), firms engaging in tax avoidance are criticized. This suggests that firms that avoid taxes tend to have bad reputations, and socially responsible firms are expected to engage in less tax avoidance. However, there is little evidence of how tax avoidance damages a firm's survival or sustainability. Thus, to examine the relationship between firm tax avoidance and financial sustainability, ETRs are analyzed to reveal if they can be used to distinguish sustainable firms from those that are not. Our results indicate that ETRs are higher in the sustainable firms, and higher ETRs are tied with sustainability; thus, the tax avoidance can diminish sustainability.

The findings have some potential implications: first, the results encourage firms to change their mindset about engaging in tax avoidance. Second, we can assume a firm's ETR is a useful indicator to distinguish firm sustainability, which provides a potential key performance indicator for integrated reporting. Overall, the study sheds light on the tax avoidance issue that has grown to the point that it can no longer be ignored by researchers or citizens. Accounting should ultimately serve to enhance social welfare (Lehman, 1992), and should not neglect the social consequences of tax avoidance. We provide evidence that the value-added distribution of paying tax has the potential to distinguish a firm's sustainability.

The remainder of this paper is organized as follows. Section 2 provides the background of the analysis and reviews related research. Section 3 develops the hypothesis and describes the data used. Section 4 describes the results for the hypothesis, and section 5 concludes the paper.

2. BACKGROUND

2.1. Tax avoidance and sustainability

According to agency theory, a firm is simply a nexus of contracts of shareholders. Firm directors have no legal obligation to take actions that will result in their firm paying more tax than required (Hasseldine and Morris, 2013). Agency theory implies that corporate income taxes represent a significant expense to shareholders. From this point of view, increased tax avoidance can result in both higher cash flows and higher after-tax earnings, which leads to widespread interest and concern over the magnitude, determinants, and consequences of firm tax avoidance (Shackelford and Shevlin, 2001; Hanlon and Heitzman, 2010). Many researches explore the role of agency frictions in explaining variations in tax avoidance (e.g., Khan *et al.*, 2017). From the perspective of financial reporting, Frank *et al.* (2009) and Sikka (2017) investigate the association between aggressive financial reporting, corporate profit shifting, and tax avoidance. Previous research related to corporate governance has examined the association between tax avoidance and ownership structure (Chen *et al.*, 2010; Badertscher *et al.*, 2013; Richardson *et al.*, 2016; Khan *et al.*, 2017), foreign investors' interests (Salihu *et al.*, 2015), labor unions (Chyz *et al.*, 2013), and business globalization (Rego, 2003; Hope *et al.*, 2013; Finér and Ylönen, 2017). Desai and Dharmapala (2006), Dyreng *et al.* (2010), and Armstrong *et al.* (2015) examine the links between corporate governance, managerial incentives, and tax avoidance.

On the other hand, the costs of tax avoidance are much less clear (Austin and Wilson, 2017). However, many multinational firms have recently been criticized because of their tax avoidance. Margaret Hodge, the chair of the United Kingdom's Parliament Committee on Public Accounts, accused Starbucks, Google, and Amazon of immoral behavior because of their use of the letter of the tax laws, both nationally and internationally, to minimize their tax obligations (Davis *et al.*, 2016). In the case of Starbucks, a Reuter's article in October 2012 compared the amount of Starbucks' U.K. sales to the amount of U.K. income taxes paid by the firm and emphasized that while Starbucks reported no profit for tax purposes in the U.K., the firm was concurrently telling analysts and investors that U.K. operations were profitable. Following this article, Starbucks became the target of protests. During a speech at the World Economic Forum in January 2013, Britain's Prime Minister, David Cameron, publicly reprimanded Starbucks for its lack of tax payments. Following the comments, Starbucks volunteered to forgo enough tax deductions to pay an additional £20 million in taxes in the succeeding two years (Austin and Wilson, 2017).

As seen above, tax avoidance is a politically charged topic that can attract unfavorable attention for both firms and their large investors from media, government, and consumer and public interest groups in a phenomenon referred to as "tax-shaming." Many quasi-indexers manage pension and other funds for large portions of the general public, and tax-shaming could result in adverse private consequences for managers of these funds (Khan *et al.*, 2017). Many firms now recognize that tax avoidance, in a broad sense, results in costs for the firm itself. Graham *et al.*'s (2014) survey shows that out of 509 firms, 77.6 per cent answered that they decided not to implement a tax

planning strategy proposed and/or mentioned by an accounting, law, investment, or tax consulting firm because of potential harm to the company reputation, risk of adverse media attention, and so on. Academic research finds confirmatory evidence of the following: a positive and significant association between ETRs and firms' reputations (Austin and Wilson, 2017), a relationship between tax avoidance and unethical behavior, such as accounting fraud (Lennox *et al.*, 2013), and stock price crash risk as a result of tax avoidance (Kim *et al.*, 2011).

The reason tax avoidance is potentially harmful to firms can be framed as follows. Tax payment is a civic duty (David and Gallego, 2009) and a firm has a societal obligation to pay its fair share of taxes (Lanis and Richardson, 2015), although comparatively little scholarly attention is paid to the payment of democratically agreed upon taxes (Sikka, 2010). Tax avoidance reduces government revenue, which decreases the level of various national and social services. Recent anecdotal evidence suggests that some stakeholders of public firms regard corporate tax payments as socially responsible. A survey by the *Guardian* newspaper states that nearly 60 per cent of financial directors in the U.K. now regard taxes as an ethical issue (Davis *et al.*, 2016). Therefore, tax avoidance creates a social problem and frequently generates hostility, damages the firm's reputation with its various stakeholders, and at worst, could even result in the cessation of a firm's business operations (Lanis and Richardson, 2015).

A firm exists above and beyond management, shareholders, and any specific stakeholder. Stakeholders are those groups that are vital to the survival and success of the organization (Freeman, 2004). Although each group of stakeholders (i.e., shareholders, consumers, employees, etc.) of a firm is likely to view tax avoidance differently (Austin and Wilson, 2017), both the institution of a business as such and individual companies exist only because they offer valuable services for society (Preuss, 2010). The existing mutual dependence of firms and society implies that business decisions must follow the principle of shared values, which is consistent with Porter's view (Lanis and Richardson, 2015). Regarding sustainable value creation, the economic, environmental, and societal impacts on all stakeholders must be considered. According to stakeholder theory, a firm's success is dependent on the successful management of all its relationships with its stakeholders, and the firm must work for the benefit of its stakeholders to ensure survival (Freeman and Evan, 1990). In a business context, value is created when value is generated for shareholders, as well as all other stakeholders, simultaneously (Badurdeen and Jawahir, 2017). Response to the social needs of relevant stakeholders (Moldavska and Welo, 2017) can be measured by value added distribution including tax payment.

The payment of taxes is both a firm's crucial contribution to society and essential to good stakeholder management; it has been researched from the aspect of tax avoidance and corporate social responsibility (CSR). For example, David and Gallego (2009) discuss the relationship between firm income tax and CSR. Lanis and Richardson (2012a, 2012b) compare the CSR disclosure of tax aggressive firms with those of non-tax-aggressive firms. Lanis and Richardson (2015) indicate that more socially responsible firms are likely to display less tax avoidance.

A limited number of studies have focused on tax avoidance from the firm's sustainability perspective. This is at least partially due to the many different interpretations of sustainability and the lack of a solid definition of sustainability. The concept of sustainability in a business context is interpreted in several different ways (e.g., Montiel and Delgado-Ceballos, 2014; Lankoski, 2016), and there is no definition of the relationship between the concept of sustainability and accounting (Çalışkan, 2014). The Cambridge Business English Dictionary (Cambridge University Press) has two definitions of "sustainability." The first is "the idea that goods and services should be produced in ways that do not use resources that cannot be replaced and that do not damage the environment," and another is "the ability to continue at a particular level for a period of time." In the field of academic research, the numerous functional definitions of sustainability have been analyzed by many authors. In academic literature after 1970, two categories of the definition of sustainability have been developed: (1) functional definitions related to the concept of "sustainable development," and (2) definitions oriented toward systemic approaches. However, there is lack of clarity in differentiating the concept of "sustainability" from other concepts close in meaning, such as durability, resilience, longevity, and others (Pater and Cristea, 2016).

Interestingly, although these two definitions of sustainability are similar, they have two different meanings. In many corporate social responsibility studies, the word sustainability is used in terms of sustainable development, from the perspective of the environment or natural resources, such as "sustainability has been conceptualized as an emergent characteristic of inter-locking social, environmental, and economic systems" (Bebbington *et al.*, 2017). However, in this study, the use of the word sustainability is consistent with the second meaning. There is no time horizon differentiation for the definition of the concepts of durability and sustainability, and there is no clear distinction between these concepts. Therefore, this study considers the length of a firm's survival, such as for more than 30, 50, or 100 years, as a proxy for the firms' sustainability, following Oshika and Saka (2017). ETRs are analyzed to determine whether a firm's sustainability can be distinguished from that of other firms.

2.2. Measuring tax avoidance

Tax avoidance does not necessarily imply that firms are engaging in anything improper (Dyreng *et al.*, 2008). Behaviors that reduce a firm's tax burden include tax saving, tax avoidance, and tax evasion. Tax saving is reducing tax by making legitimate accounting choices. Tax evasion is escaping or reducing tax improperly through unlawful means. Tax avoidance falls into an intermediate category between tax saving and tax evasion, which involves reducing the firm's tax burden by engaging in deviant tax behavior that does not conflict with tax law. It is difficult to distinguish among these three behaviors, as there are many areas in practice where the law is unclear. In addition, as highlighted by Hanlon and Heitzman (2010), it is difficult to separate technically legal avoidance and illegal evasion for two reasons. First, most of the tax planning activities in question involve transactions that are often technically legal. Second, the legality of a tax avoidance transaction is often determined after the fact in a court of law, and the

permissibility of these transactions is almost always ambiguous. There are perennial debates about the meaning and significance of tax avoidance and tax evasion (Sikka, 2010). In this study, consistent with existing research (e.g., Dyreng *et al.*, 2008; Chen *et al.*, 2010; Lanis and Richardson, 2015; Saka *et al.*, 2019), firm tax avoidance is defined broadly as the downward management of taxable income through tax-planning activities, which reduce the firm's taxes relative to its pre-tax accounting income, including both tax reductions that comply with tax law and those that result from grey-area tax planning; our measures do not specifically distinguish between the two.

We employ ETR measures as the measure of firm tax avoidance because it has been widely used in empirical tax research (Shackelford and Shevlin, 2001; Hanlon and Heitzman, 2010; Chen *et al.*, 2010; Badertscher *et al.*, 2013). When the firm's ETR is lower, the firm is more aggressive in tax avoidance. Since previous studies show a variety of ETRs, it is important to consider which ETR is appropriate for the purposes of this study. *GAAP* (generally accepted accounting principles) *ETR* is widely used in previous research because it captures a broad range of tax avoidance activities. *GAAP ETR* is calculated as the ratio of total tax expense reported on the firm's income statement to pre-tax income:

$$GAAP\ ETR = \frac{Total\ Tax\ Expense}{Pre - tax\ Income}$$

This measure reflects non-conforming tax avoidance and is appropriate for publicly listed companies where reported book income is important to investors (Hanlon and Heitzman, 2010). Book income is based upon *GAAP*; however, taxable income is based on the tax code. The two systems have different goals and are influenced differently (Graham *et al.*, 2012). In addition, countries use two systems for conformity between financial reporting and tax reporting: a uniform reporting system and a dual reporting system. In uniform reporting system countries, such as Japan, Germany, France, Portugal, and Italy, both accounting income and taxable income are primarily based on *GAAP*, but have several permanent differences, which are not allowed as deductible expenses for tax purposes. In dual reporting system countries, such as the U.K., the U.S., Denmark, Canada, and Australia, the accounting income calculation and tax income calculation are basically independent, but partially overlap (Saka *et al.*, 2019).

Since the numerator in *GAAP ETR* is total tax expense, a tax strategy that defers taxes (e.g., accelerated depreciation for tax purposes) will not alter the *GAAP ETR* (Hanlon and Heitzman, 2010). To detect tax deferral strategies, especially in dual reporting system countries, *Cash ETR*, which is the ratio of cash taxes to pre-tax income, is more appropriate for use. Dyreng *et al.* (2008) use cash ETR for their analysis of U.S. firms. In the U.S., firms make estimated tax prepayments; therefore, cash tax paid (the numerator) corresponds to pre-tax income (the denominator). However, this does not result in a match in countries that do not have estimated tax prepayments. A mismatch between the numerator and denominator of annual cash ETR could exist if the cash paid includes taxes paid on earnings from a different period. In uniform reporting system countries such as Japan, the appropriate ETR for firms might be *Current ETR*, where the numerator is total tax expense minus deferred income

taxes, as tax expense is composed of the sum of current tax expense and deferred tax expense. *Current ETR* reflects temporary differences. Temporary differences are differences in the tax and book bases of assets and liabilities. These differences in bases result in taxable or deductible amounts in future years when the asset is recovered or the liability is settled. Whereas temporary differences arise because there are differences when certain transactions are included on the balance sheet and in the income statement, other differences do not arise from timing issues, but rather are permanent in nature. Consequently, permanent differences do not cause ETRs to differ from statutory tax rates (Graham *et al.*, 2012; Saka *et al.*, 2019).

Permanent differences are more important than temporary differences for this research's perspective of investigating whether the firm fulfils its social obligation to pay tax. In this case, *GAAP ETR*, where the numerator is total tax expense, is appropriate. *GAAP ETR* has limitations as a measure of tax avoidance, as discussed above. Tax avoidance activities that generate temporary differences (i.e., those that defer cash taxes paid to later periods) are not reflected in *GAAP ETR* (Hanlon and Heitzman, 2010). Additionally, *GAAP ETR* is also influenced by accounting for tax-related accruals. For example, changes in valuation allowances and changes in tax contingency reserves affect total tax expense (Hanlon and Heitzman, 2010). Thus, *GAAP ETR* is the product of both tax avoidance activities and financial accounting rules. Nonetheless, *GAAP ETR* is a widely used measure of tax avoidance that is easily accessible in the tax footnote of firms' annual reports. Because *GAAP ETR* is easily identifiable by those without financial expertise, it is widely used by the media, which has influence on stakeholders (Saka *et al.*, 2019). Therefore, *GAAP ETR*, which reflects aggressive tax planning through permanent book-tax differences, is used in this study.

To confirm the existence of tax avoidance with a trend, we must consider the level of statutory tax rates. Many studies have shown empirical evidence of tax competition among the European and OECD countries (Suzuki, 2014). If the statutory tax rates of these countries have a decreasing trend, a decreasing ETR does not necessarily mean tax avoidance. Therefore, this study analyzes the difference between *GAAP ETR* and the statutory tax rate to confirm the existence of tax avoidance.

$$GAAPETR - \text{StatutoryTaxRate} = \frac{\text{Total Tax Expense}}{\text{Pre-tax Income}} - \text{StatutoryTaxRate}$$

In addition, *GAAP ETR* changes every year, depending on taxable or deductible amounts in that year. The issue of *GAAP ETR* is that there can be significant year-to-year variation, and undefined ETRs due to negative denominators can obscure inferences about a firm's tax avoidance. To avoid the effects of extreme observations on the one-year measures related to changes in tax accruals or fluctuations in profitability, we also include long-term measures of ETRs. Dyreng *et al.* (2008) used a long-run *ETR* measure, which is estimated as the sum of cash paid for income tax over ten years scaled by the sum of pre-tax income over the same period. This is not the same as simply averaging a series of single year ETRs; averaging would tend to be overly affected by years with unusually large or small ETRs (Dyreng *et al.*, 2008). The long-run computation avoids year to year volatility in annual ETRs (Hanlon and Heitzman,

2010). This study also measures *long-term GAAP ETR* and *the long-term difference of GAAP ETRs and statutory tax rates* over long time periods of 10 and 20 years.

$$\text{Long term GAAP ETR} = \frac{\sum \text{Total Tax Expense}}{\sum \text{Pretax Income}}$$

$$\text{Long term GAAP ETR} - \text{Statutory Tax Rate} = \frac{\sum \text{Total Tax Expense}}{\sum \text{Pretax Income}} - \text{Statutory Tax Rate (Average)}$$

3. Hypothesis development and data

3.1 Hypothesis development and definition of variables

Recently, many multinational firms have been accused of tax avoidance, which is a politically charged topic that can attract unfavorable attention from stakeholders in a phenomenon referred to as “tax shaming.” Many firms now recognize that, in a broad sense, tax avoidance represents a cost for the firm itself. Previous research has shown evidence of the association between tax avoidance and reputation (Austin and Wilson, 2017) and stock price crash risk (Kim *et al.*, 2011).

Tax payment is a civic duty (David and Gallego, 2009) and a firm has a societal obligation to pay its fair share of taxes (Lanis and Richardson, 2015). Therefore, tax avoidance causes a social problem, and frequently generates hostility, damages the firm’s reputation with various stakeholders, and at worst, could even result in the cessation of a firm’s business operations (Lanis and Richardson, 2015). Stakeholders are those groups who are vital to the survival and success of the organization (Freeman, 2004). According to stakeholder theory, a firm’s success is dependent on the successful management of all its relationships with its stakeholders, and the firm must work for the benefit of all stakeholders to ensure survival (Freeman and Evan, 1990).

Sustainable firms distribute a higher proportion of their value-added to stakeholders (including to governments through payment of tax) than non-sustainable firms (Oshika and Saka, 2017). In this sense, firms with a higher degree of tax avoidance cannot achieve sustainability, even though tax avoidance makes the firm more profitable in the short run. Thus, our hypothesis is as follows:

H: Tax avoidance diminishes sustainability.

The hypothesis is examined in three ways. First, we examine the distribution (i.e., histograms) of ETRs of both sustainable and non-sustainable firms. Second, we check the time trend of ETRs for 20 years. Last, we use LOGIT model to determine if ETRs are tied to sustainability.

Three variables are employed for sustainability. The first involves a forward-looking measure of sustainability. The firm is treated as “sustainable” if the listed firm in 1985 is still listed in 2015 (i.e., after 30 years), regardless of the year of foundation¹. The next two are backward looking measures based on Oshika and Saka (2017). Taking the year of foundation for a given firm, the firm is treated as a “sustainable firm” if the

¹ 1985 is the oldest year included in the database (i.e., Osiris).

firm has achieved 50 or 100 years of sustainability at 2016, the time of the analysis (i.e., founded on or before 1966 and 1916, respectively). These two variables can be thought of as “past survivors.” To simplify our explanation hereafter, we classify each group into 30, 50, or 100 years of sustainability. We use the LOGIT model by setting the sustainable dummy as one for sustainable firms, and zero for other firms.

We also consider control variables that prior research has established to be determinants of firm survival rates. These controls include firm-level characteristics, such as firm profitability, leverage, and size. ROE (net income divided by total net assets) is used for profitability. Leverage is calculated as total liabilities divided by total assets, while size is the logarithm of total assets. Thus, the model for the hypothesis is as follows:

$$\text{logit}(p) := \log p / (1-p) = \alpha + \beta_1 ETR + \beta_2 ROE + \beta_3 Leverage + \beta_4 Size$$

$$Pr(\text{Sustainability}=1) = p, Pr(\text{Sustainability}=0) = 1-p$$

Sustainability is set to one if

(1) a firm has achieved 30 years of sustainability (listed from 1985 to 2015, regardless of the year of foundation)

(2) a firm has achieved 50 years of sustainability (founded on or before 1966)

(3) a firm has achieved 100 years of sustainability (founded on or before 1916)

where

ETR = effective tax rate

ROE = net income divided by total net assets

Leverage = total liabilities divided by total assets

Size = logarithm of total assets

If the coefficient of ETR (i.e., β_1) is significantly positive, indicating that higher ETRs are tied to sustainability, the hypothesis is supported.

This hypothesis assumes that the degree of tax avoidance differs from one firm to another. Even though tax avoidance is ubiquitous and has lasted for many years, it is not clear if all firms engage in tax avoidance. Therefore, it is worth confirming the phenomena and the cross-sectional variation. In addition, a long run computation should be done to avoid year-to-year volatility in the annual ETR (Hanlon and Heitzman, 2010). Theoretically, even though one year's ETR is lower or higher than the statutory tax rate, in the long run, the firm's ETR should be closer to the statutory tax rate if the firm does not engage in tax avoidance. On the other hand, if many firms stay at lower ETRs for a long period, such as 10 years, then these firms should be considered as engaging in some sort of tax avoidance.

3.2 Data collection

To gain the broadest possible global perspective, the financial data set is obtained from Bureau van Dijk's *Osiris* database for listed firms worldwide from 1985 to 2015. We used the *OECD.Stat* to obtain the statutory tax rate, which we used for our robustness check. Firms without all the necessary financial data for analysis are

excluded. As a result, the sample consists of 61,549 firms. ETRs are defined as the ratio of total tax expense divided by pre-tax accounting income. The ETR is set as missing if either the denominator (i.e., pre-tax accounting income) or the numerator (i.e., total tax expense) is zero or negative.

4. Results of analysis

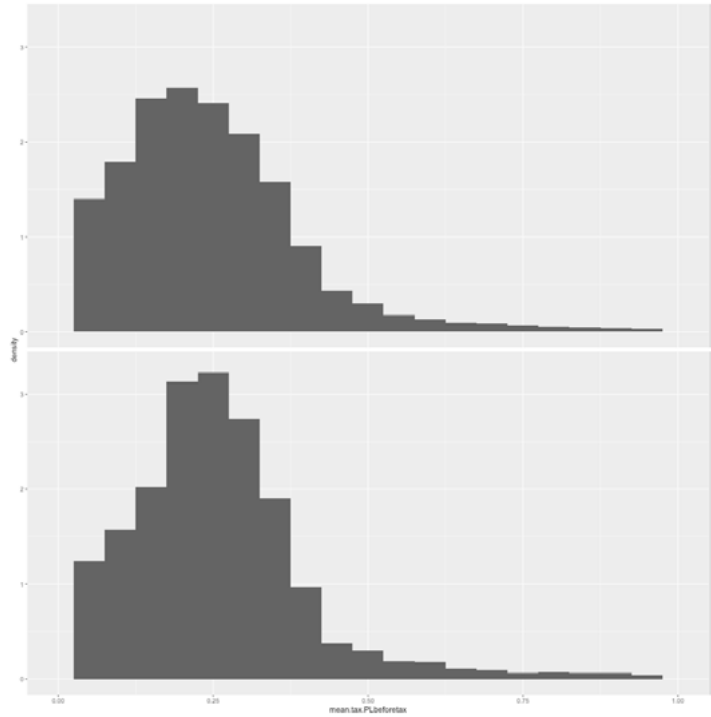
In this section, we present three types of evidences of the relationship between firms' tax avoidance and the firms' sustainability, under the assumption of the probability of firms' tax avoidance (Saka *et al.*, 2019). The first two evidences are the visualized results using histograms and box plots of ETRs to distinguish sustainable firms from those that are not, as described in section 4.1. The third evidence is the empirical result showing that firms' sustainability is explained by ETRs, as described in section 4.2. Note that the ETR is treated as missing if either the denominator (i.e., pre-tax accounting profit) or numerator (i.e., total tax expense) is zero or negative, as ETR is defined as the ratio of total tax expense divided by pre-tax accounting profit.

4.1. Tax avoidance and sustainability: visualization

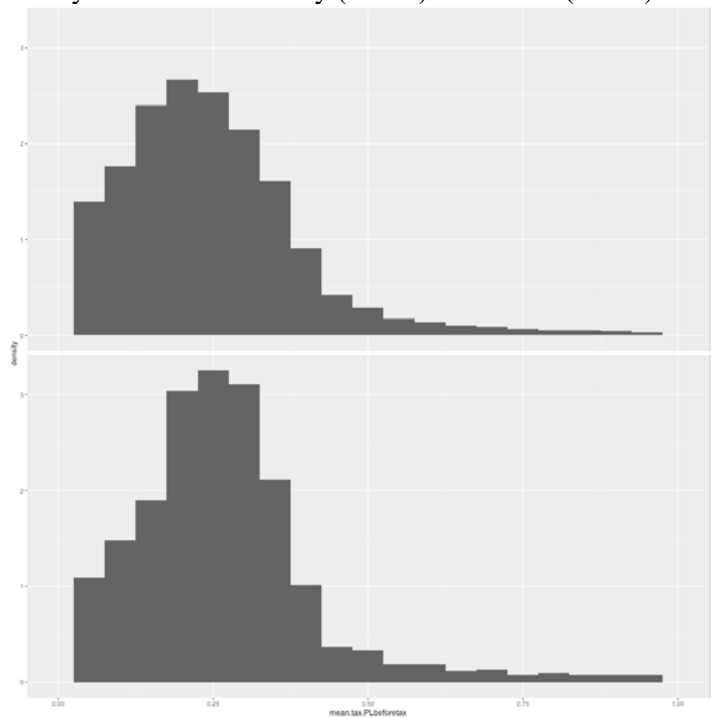
Here, we show two types of visualized evidences (i.e., histograms and box plots of ETRs) to distinguish sustainable firms from those that are not using ETRs. First, as ETRs exhibit substantial cross-sectional variation (e.g., Dyreng *et al.*, 2008), we confirm, in Figure 1, if there is a difference in the cross-sectional variation of the ETRs between sustainable firms and other firms around the world. Figure 1 shows the average ETRs of each of the listed firms in histograms for a 10-year period (2006-2015), divided into sustainable firms (below) and others (above), for three types of sustainable firms: (a) 30 years, (b) 50 years, and (c) 100 years. The vertical (y) axis indicates the density of average GAAP ETRs for 10 years of each of the listed firms, and the horizontal (x) axis indicates the level of ETRs. Figure 1 shows that the location parameters of sustainable firms are clearly greater than those of others. Similar results satisfy in all cases of the sustainable firms.

Figure 1 Mean ETRs for 10 years (2006-2015) of sustainable firms and others

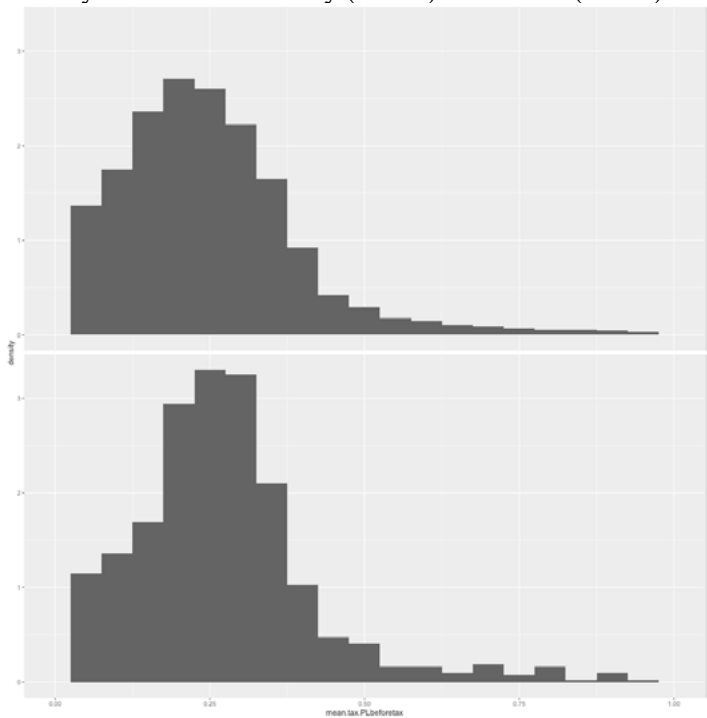
(a) Firms with 30 years of sustainability (below) and others (above)



(b) Firms with 50 years of sustainability (below) and others (above)



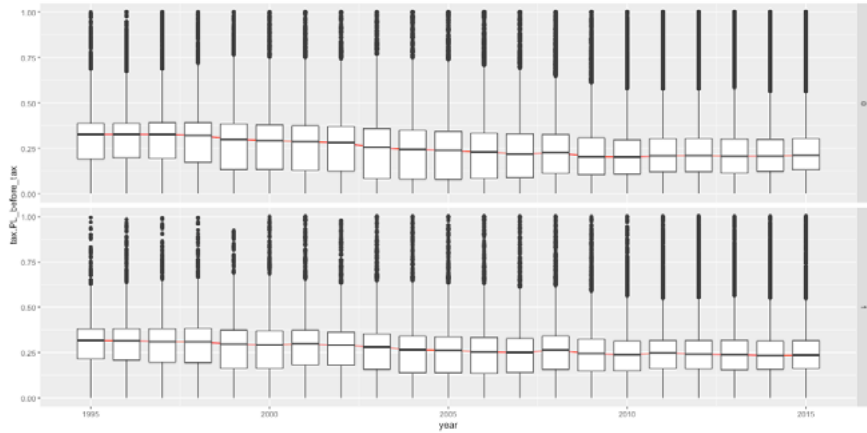
(c) Firms with 100 years of sustainability (below) and others (above)



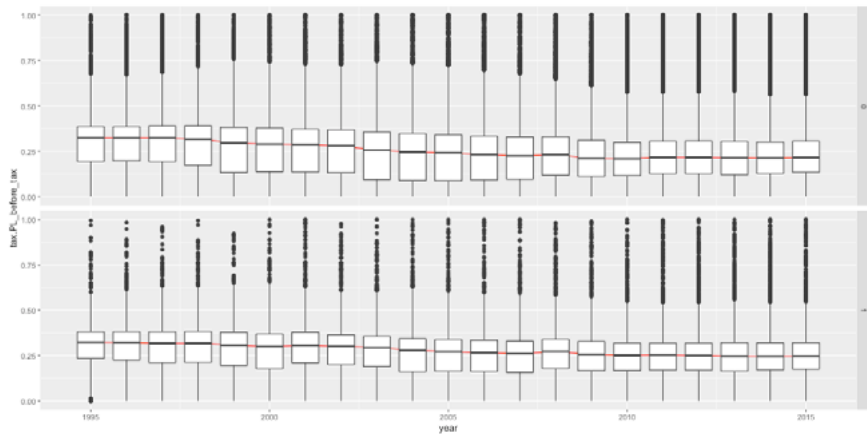
Second, we show, in Figure 2, the time-series trend (box plots) of ETRs for firms with 20 years (1995-2015) of sustainability (below) and other firms (above) around the world, for three types of sustainable firms: (a) 30 years, (b) 50 years, and (c) 100 years. In Figure 2, the vertical (y) axis indicates the GAAP ETRs, and the horizontal (x) axis indicates the timeline (years 1995-2015), which illustrates the dynamic trend from 1995 to 2015. Figure 2 shows that ETRs have a downward trend because of tax rate competition among tax authorities; however, the more important evidence that the location parameters of sustainable firms are greater than those of other firms. The similar results satisfy in all cases of the sustainable firms: (a) 30 years, (b) 50 years, and (c) 100 years.

Figure 2 ETRs trend for 20 years (1995-2015) of sustainable firms and others

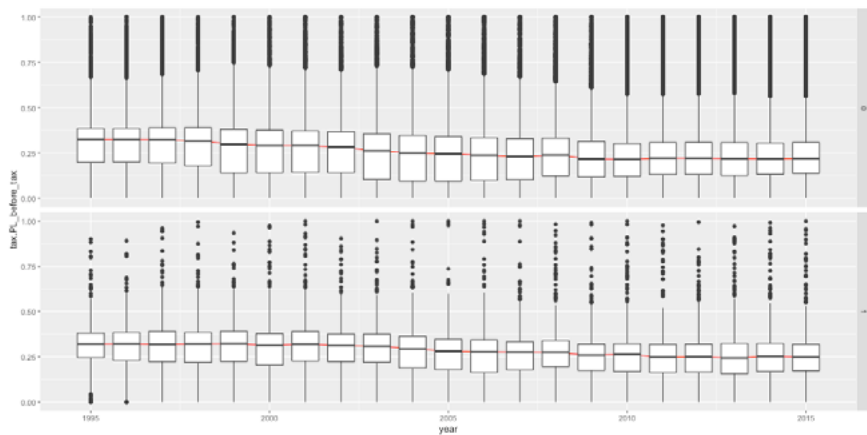
(a) Firms with 30 years of sustainability (below) and others (above)



(b) Firms with 50 years of sustainability (below) and others (above)



(c) Firms with 100 years of sustainability (below) and others (above)



4.2. Tax avoidance and sustainability: LOGIT model results

Figures 1 and 2 show that the sustainable firms show higher ETRs than other firms, and that phenomena lasted for long. This is consistent with the conjecture that sustainable firms engage in less tax avoidance. However, this univariate result may be an artefact of profitable firms' tendency for sustainability and payment of more taxes. Thus, we use the logit regression with control variables as our third analysis.

Table 1 shows the results of the logit regression for three types of sustainable firms: (a) 30 years, (b) 50 years, and (c) 100 years. Their purpose is to determine if ETRs can distinguish sustainable firms from others. We calculate the ETR for 1985 (paid tax expense divided by pre-tax accounting income). In our empirical analysis, we examine whether the ETR in 1985 is related to the three sustainability measures, while controlling for profitability (ROE), leverage, and size. The result in Table 1 shows that the coefficients on the *ETR* are all positive, and two of them (30 years and 50 years) are statistically significant. These are consistent with the hypothesis.

However, the level of the ETRs themselves may not indicate the level of tax avoidance. In terms of tax avoidance, it is more important to highlight ETRs compared to the statutory tax rates. Therefore, not only the distribution of firms' ETRs themselves but also the relations between ETRs and statutory tax rates should be investigated. Additionally, we use the difference between ETRs and statutory tax rates (ETRs minus statutory tax rates) instead of using ETRs themselves as our robustness check. Our new LOGIT model thus becomes:

$$\text{logit}(p) := \log p / (1-p) = \alpha + \beta_1 \text{TRD} + \beta_2 \text{ROE} + \beta_3 \text{Leverage} + \beta_4 \text{Size}$$

where

TRD = difference between ETRs and statutory tax rates (ETRs minus statutory tax rates).

All other variables stay the same.

Table 1. Firms' ETRs (Effective Tax Rates) and sustainability

	30 years	50 years	100 years
Intercept	0.378	-3.938	-8.010
	(0.90)	(48.66)***	(45.19)***
ETR	0.337	0.522	0.488
	(6.83)***	(7.60)***	(1.65)
ROE	0.341	0.160	0.307
	(18.93)***	(2.36)	(2.15)
Leverage	-0.406	-0.833	-0.996
	(11.51)***	(28.41)***	(10.81)***

	30 years	50 years	100 years
Size	-0.026	0.201	0.413
	(0.94)	(29.48)***	(29.42)***
Total observations	2039	2039	2039
Sustainable	689	297	70
Others	1350	1742	1969
Proportion of Sustainable	33.8%	14.6%	3.4%

The results from using LOGIT regression. The dependent variables are the dummy variables of the three types of sustainability. *ETR* is the effective tax rate, *ROE* is the net income divided by total net assets, *leverage* is the total liabilities divided by total assets, and *size* is the logarithm of total assets. The numbers in the parentheses show the Wald chi square statistics. ***, **, and * indicate that the coefficient is significant at 1%, 5%, and 10% level, respectively.

The results in Table 2 show that the coefficients on *TRD* are all positive and significant. In conclusion, the empirical results of the LOGIT models are largely consistent with the hypothesis that high ETR firms exhibit sustainability.

Table 2. Firms' TRD (effective tax rates minus statutory tax rates) and sustainability

	30 years	50 years	100 years
Intercept	-2.729	-4.177	-7.580
	(25.26)	(34.83)***	(28.90)***
TRD	0.427	0.522	0.623
	(7.33)***	(3.71)***	(1.98)*
ROE	0.498	0.234	0.203
	(24.88)***	(3.55)	(0.77)
Leverage	-0.813	-0.928	-0.962
	(29.88)***	(26.30)***	(7.92)***
Size	-0.247	0.233	0.413
	(45.96)	(25.83)***	(21.06)***
Total observations	1607	1607	1607
Sustainable	502	249	63

	30 years	50 years	100 years
Others	1105	1358	1544
Proportion of Sustainable	31.2%	15.5%	3.9%

The results from using LOGIT regression. The dependent variables are the dummy variables of the three types of sustainability. *TRD* is the difference between ETRs and statutory tax rates (ETRs minus statutory tax rates), *ROE* is the net income divided by total net assets, *leverage* is the total liabilities divided by total assets, and *size* is the logarithm of total assets. The numbers in the parentheses show the Wald chi square statistics. ***, **, and * indicate that the coefficient is significant at 1%, 5%, and 10% level, respectively.

5. Conclusions and discussion

The issue of firm tax avoidance has recently had substantial attention in academic literature, as well as in the real world. However, little evidence exists on the long-term worldwide situation and on the economic consequences; in other words, how tax avoidance affects the firm itself in the long run. Since tax payment is a civic duty (David and Gallego, 2009), a firm has a societal obligation to pay its fair share of taxes (Lanis and Richardson, 2015). According to stakeholder theory, a firm's success is dependent on the successful management of all its relationships with its stakeholders; therefore, the firm's survival and success can be represented by how the firm pays tax. To ensure survival, a firm must work for the benefit of its stakeholders (Freeman and Evan, 1990). This study examines the relationship between tax avoidance and firm sustainability.

Using the three types of definitions for the sustainable firms, this paper first investigated visually. The histograms showed that the location parameters of sustainable firms are clearly greater than those of non-sustainable firms. The time-series trend (box plots) of ETRs for 20 years (1995-2015) showed that these relationships lasted long. Thereafter, we analyzed if ETRs are tied with sustainability, using the LOGIT model. The coefficients on ETRs are all positive, though insignificant in one model, and show that higher ETRs are tied with sustainability. This result stayed similar when we used the TRD (the differences between ETRs and the statutory tax rates) to take the difference of the statutory tax rates across countries and time. Our results overall indicate that ETRs are higher in the sustainable firms and higher ETRs are tied with sustainability, thus tax avoidance diminishes sustainability.

As a conclusion, the study obtained empirical results that are essentially consistent with the hypothesis that high ETR firms demonstrate sustainability. This study contributes to the literature in three key ways. (1) It extends the findings of Dyreng *et al.* (2017) by calculating the differences between ETRs and statutory tax rates, which is more clearly representative of tax avoidance than the ETR alone. (2) The empirical analyses involve firms all over the world and over 20 years, which make the results generalizable. (3) This is the first study to show the economic consequences (i.e., effect on sustainability) of tax avoidance in the long run. Much research has examined ETRs, but none has decomposed them as done in this study, or examined shifting

across a worldwide sample of firms over the long term. Our study reaches beyond Markle and Shackelford (2012), Lee and Swenson (2016), and Dyreng *et al.* (2017) by explicitly considering statutory tax rates and ETRs over the long term. We extend existing research by using a worldwide database, and show the relationship between tax avoidance and firm sustainability.

Our findings have several potential implications. First, firms should change their mindset about engaging in tax avoidance. Existing research shows evidence of both the cost and benefit aspects of firm tax avoidance. We provide additional evidence that tax avoidance is related to the firm's sustainability. Second, since ETRs are a useful indicator for distinguishing whether firms are sustainable firm, our study provides a potential key performance indicator for integrated reporting. Integrated reporting, a new trend in corporate reporting, requires information on the value created by an organization that leads to financial stability and sustainability, and the ETR has the potential of meeting this requirement.

Finally, our study is subject to some limitations. First, the empirical sample is somewhat limited, and the threshold of sustainable firms was established *ad hoc* due to data availability. Thus, additional tests are needed to certify the robustness. Second, our ETR measures are drawn from financial statements prepared for investors and not for tax authorities. To analyze ETRs among countries, considering the conformity between financial reporting and tax reporting and the individual countries' tax systems might be useful. Hence, our results should be interpreted with some caution.

Nonetheless, we believe that this is the best endeavor to date to comprehensively analyze the tax behavior of firms worldwide. It would be useful for future research to examine the reality of the situation of firm tax avoidance in the long term. Overall, this study sheds light on the tax avoidance issue that has grown to the point it can no longer be ignored by researchers or citizens. Accounting should ultimately serve to enhance social welfare (Lehman, 1992); accounting should not neglect the social consequences of tax avoidance. This study is an initial step toward the investigation of firm tax avoidance worldwide.

References

- Armstrong, C. S., Blouin, J. L., and Jagtlinzer, A. D. (2015), "Corporate governance incentives and tax avoidance", *Journal of Accounting and Economics*, Vol. 60, pp. 1-17.
- Austin, C. R., and Wilson, R. J. (2017), "An examination of reputational costs and tax avoidance: Evidence from firms with valuable consumer brands", *The Journal of the American Taxation Association*, Vol. 39 No. 1, pp. 67-93.
- Badertscher, B. A., Katz, S. P., and Rego, S. O. (2013), "The separation of ownership and control and corporate tax avoidance", *Journal of Accounting and Economics*, Vol. 56, pp. 228-250.
- Badurdeen, F., and Jawahir, I. S. (2017), "Strategies for value creation through sustainable manufacturing", *Procedia Manufacturing*, Vol. 8, pp. 20-27.
- Bebbington, J., Russell, S., and Thomson, I. (2017), "Accounting and sustainable development: Reflections and propositions", *Critical Perspectives on Accounting*, Vol. 48, pp. 21-34.

- Çalışkan, A.Ö. (2014), "How accounting and accountants may contribute in sustainability", *Social Responsibility Journal*, Vol. 10 No. 2, pp. 246-267.
- Chen, S., Chen, X., Cheng, Q., and Shevlin, T. (2010), "Are family firms more tax aggressive than non-family firms?", *Journal of Financial Economics*, Vol. 95, pp. 41-61.
- Chyz, J. A., Leung, W. S. C., Li, O. Z., and Rui, O. M. (2013), "Labor unions and tax aggressiveness", *Journal of Financial Economics*, Vol. 108, pp. 675-698.
- David, F., and Gallego, I. (2009), "The interrelationship between corporate income tax and corporate social responsibility", *Journal of Applied Accounting Research*, Vol. 10 No. 3, pp. 208-223.
- Davis, A. K., Guenther, S. A., Krull, L. K., and Williams, B. M. (2016), "Do socially responsible firms pay more taxes", *The Accounting Review*, Vol. 91 No. 1, pp. 47-68.
- Desai, M. A., and Dharmapala, D. (2006), "Corporate tax avoidance and high-powered incentives", *Journal of Financial Economics*, Vol. 79, pp. 145-179.
- Dyreng, S. D., Hanlon, M., and Maydew, E. L. (2008), "Long-run corporate tax avoidance", *The Accounting Review*, Vol. 83 No. 1, pp. 61-82.
- Dyreng, S. D., Hanlon, M., and Maydew, E. L. (2010), "The effects of executives on corporate tax avoidance", *The Accounting Review*, Vol. 85 No. 4, pp. 1163-1189.
- Dyreng, S. D., Hanlon, M., Maydew, E. L., and Thornock, J. R. (2017), "Changes in corporate effective tax rates over the past 25 years", *Journal of Financial Economics*, Vol. 124 No. 3, pp. 441-463.
- Finér, L., and Ylönen, M. (2017), "Tax-driven wealth chains: A multiple case study of tax avoidance in the Finnish mining sector", *Critical Perspectives on Accounting*, Vol. 48, pp. 53-81.
- Frank, M. M., Lynch, L. J., and Rego, S. O. (2009), "Tax reporting aggressiveness and its relation to aggressive financial reporting", *The Accounting Review*, Vol. 84 No. 2, pp. 467-496.
- Freeman, R. E. (2004), "A stakeholder theory of modern corporations", in *Ethical Theory and Business*, Beauchamp, T. Bowie, N. and Arnold, D. (Eds.), Prentice Hall, Upper Saddle River, N.J. pp. 38-48.
- Freeman, R. E., and Evan, W. M. (1990), "Corporate governance: a stakeholder interpretation", *Journal of Behaviour Economics*, Vol. 19 No. 4, pp. 337-359.
- Freeman, R. E., Wicks, A. C., and Parmar, B. (2004), "Stakeholder theory and the corporate objective revisited", *Organization Science*, Vol. 15 No. 3, pp. 364-369.
- Goh, B. W., Lee, J., Lim, C. Y., and Shevlin, T. (2016), "The effect of corporate tax avoidance on the cost of equity", *The Accounting Review*, Vol. 91 No. 6, pp. 1647-1670.
- Gordon, E. A., Greiner, A., Kohlbeck, M. J., Lin, S., and Skaife, H. (2013), "Challenges and opportunities in cross-country accounting research", *Accounting Horizons*, Vol. 27 No. 1, pp. 141-154.
- Graham, J. R., Raedy, J. S., and Shackelford, D. A. (2012), "Research in accounting for income taxes", *Journal of Accounting and Economics*, Vol. 53 No. 1, pp. 412-434.
- Graham, J. R., Hanlon, M., Shevlin, T., and Shroff, N. (2014), "Incentives for tax planning and avoidance: Evidence from the field", *The Accounting Review*, Vol. 89 No. 3, pp. 991-1023.
- Gray, S. J. (1988), "Towards a theory of cultural influence on the development of accounting

- systems internationally”, *Abacus*, Vol. 24 No. 1, pp. 1-15.
- Hanlon, M., and Heitzman, S. (2010), “A review of tax research”, *Journal of Accounting and Economics*, Vol. 50 No. 2, pp. 127-178.
- Hasseldine, J., and Morris, G. (2013), “Corporate social responsibility and tax avoidance: A comment and reflection”, *Accounting Forum*, Vol. 37, pp. 1-14.
- Hope, O.-K., Ma, M., and Thomas, W.-B. (2013), “Tax avoidance and geographic earnings disclosure”, *Journal of Accounting and Economics*, Vol. 56 No. 2, pp. 170-189.
- Khan, M., Srinivasan, S., and Tan, L. (2017), “Institutional ownership and corporate tax avoidance: New evidence”, *The Accounting Review*, Vol. 92 No. 2, pp. 101-122.
- Kim, H.-B., Lee, Y., and Zhang, L. (2011), “Corporate tax avoidance and stock price crash risk: Firm-level analysis”, *Journal of Financial Economics*, Vol. 100, pp. 639-662.
- Lanis, R., and Richardson, G. (2012a), “Corporate social responsibility and tax aggressiveness: An empirical analysis”, *Journal of Accounting and Public Policy*, Vol. 31, pp. 86-108.
- Lanis, R., and Richardson, G. (2012b), “Corporate social responsibility and tax aggressiveness: A test of legitimacy theory”, *Accounting, Auditing and Accountability Journal*, Vol. 26. No. 1, pp. 75-100.
- Lanis, R., and Richardson, G. (2015), “Is corporate social responsibility performance associated with tax avoidance?”, *Journal of Business Ethics*, Vol. 127, pp. 439-457.
- Lankoski, L. (2016), “Alternative conceptions of sustainability in a business context”, *Journal of Cleaner Production*, Vol. 139, pp. 847-857.
- Lee, N., and Swenson, C. (2016), “Effects of overseas subsidiaries on worldwide corporate taxes”, *Journal of International Accounting, Auditing and Taxation*, Vol. 26, pp. 47-59.
- Lehman, C. R. (1992), *Accounting's Changing Role in Social Conflict*. Markus Wiener Publishing, New York, NY.
- Lennox, C., Lisowsky, P., and Pittman, J. (2013), “Tax aggressiveness and accounting fraud”, *Journal of Accounting Research*, Vol. 51 No. 4, pp. 739-778.
- Markle, K., and Shackelford, D. (2012), “Cross-country comparisons of corporation income tax rates”, *National Tax Journal*, Vol. 65 No. 3, pp. 493-527.
- Moldavska, A., and Welo, T. (2017), “The concept of sustainable manufacturing and its definitions: A content-analysis based literature review”, *Journal of Cleaner Production*, Vol. 166, pp. 744-755.
- Montiel, I., and Delgado-Ceballos, J. (2014), “Defining and measuring corporate sustainability: are we there yet?”, *Organization and Environment*, Vol. 27 No. 2, pp. 113-139.
- Oshika, T., and Saka, C. (2017), “Sustainability KPIs for integrated reporting”, *Social Responsibility Journal*, Vol. 13, No. 3. pp. 625-642.
- Pater, L. R., and Cristea, S. L. (2016), “Systemic definitions of sustainability, durability and longevity”, *Procedia – Social and Behavioral Sciences*, Vol. 221, pp. 362-371.
- Piketty, T. (2014), *Capital in the Twenty-First Century*, Harvard University Press, Cambridge, MA.
- Preuss, L. (2010), “Tax avoidance and corporate social responsibility: you can't do both, or can you?”, *Corporate Governance*, Vol. 10 Iss. 4, pp. 365-374.
- Rego, S. O. (2003), “Tax-avoidance activities of U.S. multinational corporations”,

Contemporary Accounting Research, Vol. 20 No. 4, pp. 803-833.

- Richardson, G., Wang, B., and Zhang, X. (2016), "Ownership structure and corporate tax avoidance: Evidence from publicly listed private firms in China", *Journal of Contemporary Accounting & Economics*, Vol. 12, pp. 141-158.
- Saka, C., Oshika, T. and Jimichi, M. (2019) "Visualization of tax avoidance and tax rate convergence: exploratory analysis of world-scale accounting data", *Meditari Accountancy Research*, Vol. 27 No. 5, pp. 695-724.
- Salihu, I. A., Annuar, H. A., and Obid, S. N. S. (2015), "Foreign investors' interests and corporate tax avoidance: Evidence from an emerging economy", *Journal of Contemporary Accounting & Economics*, Vol. 11, pp. 138-147.
- Shackelford, D., and Shevlin, T. (2001), "Empirical tax research in accounting", *Journal of Accounting and Economics*, Vol. 31, pp. 321-387.
- Sikka, P. (2010), "Smoke and mirrors: corporate social responsibility and tax avoidance", *Accounting Forum*, Vol. 34 No. 3, pp. 153-168.
- Sikka, P. (2017), "Accounting and taxation: Conjoined twins or separate siblings?", *Accounting Forum*, Vol. 41 No. 4, pp. 390-405.
- Suzuki, M. (2014), "Corporate effective tax rates in Asian countries", *Japan and the World Economy*, Vol. 29, pp. 1-17.
- Tajaddini, R., and Gholipour, H. F. (2017), "National culture and default on mortgages", *International Review of Finance*, Vol. 17 No. 1, pp. 107-133.
- Tax Justice Network (2017), *Financial Secrecy Index Ranking 2009, 2011, 2013, 2015* <http://www.financialsecrecyindex.com/>

Tools

- Cran.R. n.d.a. "Introduction to dplyr", available at:
<https://cran.r-project.org/web/packages/dplyr/vignettes/dplyr.html> (accessed 1 January 2020).
- Cran.R. n.d.b. "The R Project for Statistical Computing", available at:
<http://www.r-project.org/> (accessed 1 January 2020).
- ggplot2. n.d., available at:
<https://ggplot2.tidyverse.org/> (accessed 1 January 2020).

Journal

Global Policy and Governance

Copyright information

For Authors

As soon as an article is accepted for publication, authors will be requested to assign copyright of the article (or to grant exclusive publication and dissemination rights) to the publisher (respective the owner if other than Transition Academia Press). This will ensure the widest possible protection and dissemination of information under copyright laws. Authors submitting articles for publication warrant that the work is not an infringement of any existing copyright and will indemnify the publisher against any breach of such warranty. More information about copyright regulations for this journal is available

at www.transitionacademiapress.org

For Readers

While the advice and information in this journal is believed to be true and accurate at the date of its publication, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may have been made. The publisher makes no warranty, express or implied, with respect to the material contained herein. All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g. offprints) as well as all the translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data base, on video disks, etc.. without first the publisher. The use of general descriptive names, trade names, trademarks, etc.. in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

General information

Transition Academia Press is an independent Journals Publisher established by Transition Studies and Research Network in Autumn 2014. Based in Venice, Italy, the Network has references in Universities and Research Centers worldwide: Singapore, Shanghai, Salzburg, Berlin, Istanbul, Santiago de Chile, Washington DC, Udine, Amman, Vienna, Rome, Munich, Beijing. More information can be found on our Aims & Scope and Bodies and Organs at the end of each Journal or on our website www.transitionacademiapress.org

Subscription Information

ISSN 2194-7740

ISSN Electronic edition 2194-7759

For more information on subscription rates please contact:

Transition Academia Press

info@transitionacademiapress.org

Electronic edition

An electronic edition of this journal is available at <http://www.transitionacademiapress.org>

For Orders and Inquires

Transition Academia Press

Associazione CSNEA

via P. Frassinetti, 5 Oderzo TV ITALY

email: info@transitionacademiapress.org

Cancellations must be received by September 30th to take effect at the end of the same year.

Policies and ethics for authors

Transition Academia Press assumed as appropriate also for us the general Ethics aspects by Elsevier Researcher Academy here selected regarding publishing in Social Sciences at large but specifically in Economics, Finance, International Relations, Innovation, Technologies, Environment, Defense, Military Spending, Cultural and Social issues and analyses tools and applications)

The publication of an article in a peer-reviewed journal is an essential building block in the development of a coherent and respected network of knowledge. It is a direct reflection of the quality of work of the author and the institutions that support them. Peer-reviewed articles support and embody the scientific method. It is therefore important to agree upon standards of expected ethical behavior.

Find information about how to publish ethically under the “Ethics” topic on **Elsevier Researcher Academy** (researcheracademy.elsevier.com/publication-process/ethics). Other useful information specifically developed for editors but useful for anyone with a deep interest in the topic is the **Publishing Ethics Resource Kit** (www.elsevier.com/editors/perk).

Ethics topics to consider when publishing:

- **Multiple, redundant or concurrent publication:** An author should not in general publish manuscripts describing essentially the same research in more than one journal or primary publication. Elsevier does not view the following uses of a work as prior publication: publication in the form of an abstract; publication as an academic thesis; publication as an electronic preprint. Note: some society-owned titles and journals that operate double-blind review have different policies on prior publication. Information on prior publication is included within each Elsevier journal’s guide for authors.
- **Acknowledgement of sources:** Proper acknowledgment of the work of others must always be given.
- **Disclosure and conflicts of interest:** All submissions must include disclosure of all relationships that could be viewed as presenting a potential conflict of interest.
- **Fundamental errors in published works:** When an author discovers a significant error or inaccuracy in his/her own published work, it is the author’s obligation to promptly notify the journal editor or publisher and cooperate with the editor to retract or correct the paper.
- **Reporting standards:** Authors of reports of original research should present an accurate account of the work performed as well as an objective discussion of its significance.
- **Hazards and human or animal subjects:** Statements of compliance are required if the work involves chemicals, procedures or equipment that have any unusual hazards inherent in their use, or if it involves the use of animal or human subjects.
- **Authorship of the paper:** Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. Transparency about the contributions of authors is encouraged, for example in the form of a CRediT author statement.
- **Originality and plagiarism:** The authors should ensure that they have written entirely original works, and if the authors have used the work and/or words of others, that this has been appropriately cited or quoted.
- **Data access and retention:** Authors may be asked to provide the raw data in connection with a paper for editorial review, and should be prepared to provide public access to such data.



Journal of Global Policy and Governance Aims and scope

Global governance is a challenge of our era and us as human beings no matter where we live and what values we believe in. After a 100 years of development, international relations are so closely and tightly knit. A problem in a community might affect the life of the people in a remote part of the world and its solution might also be in the hands of these people but can't be assumed outside the more global International Relations theories and practices approach, an interrelated already practiced at every policy decision making, economic and financial levels and first of all by the main powers. How can we manage this complex of various relations matters for our life and common future? It is the time for us to invest our wisdom and energy to make global governance work now and to give a sense to the United Nations already reduced to a zero-sum-game playing on the major emergencies and conflicts due first of all to the obsolete veto system that would be at least extended to all the 15 countries of the Security Council, being them permanent or at rotation, with the weighting of votes bringing less hypocrite the present five Jalta powers partition already 70 years ago. We are talking of the world not existing anymore.

There is no simple way and framework for global governance. Global governance is a general term which means to think globally and act globally. It is complicated because problems might be local. It is complicated because problems might be also global. It is complicated because the solution of problems might be local but also in a global framework global. That is why we need to check issues case by case carefully. We need to sort out what solution is the best choice for the problem. We need to identify who should be the persons of good will taking the challenge and adding their

intellectual and scientific capabilities to the human destiny. We have to take an action worldwide. Global issues are definitely the subjects of global governance. Meanwhile, global governance takes care of issues with local reasons and local solution because we believe the experience might be helpful for people living in other parts of the world. Interdependence of International Relations with finance, economy, technology, research and advanced knowledge until a few years ago unimaginable, new military might introduced by innovation must be some of the crucial challenges, where also our Journal Global Policy and Governance intends to contribute opening its pages, issue after issue, to faculty, experts, testimonies, articles and relevant review of books, junior researches working papers. But we know also that traditional conflicts would not have any perspective in the medium term and will bring to the defeat of the ones who are imagining a return to the past.

We intend to embrace and reach all the possible interested colleagues and fellows around the world, as choices and strategies in all the sectors involving public and private governance, nobody excluded, are under questioning and innovative evaluation. Global world is not anymore a provocative statement, a kind of utopian return to realism and the theories dominant up to the German reunification, the end of Soviet Union and the war in the Balkans have now become obsolete by definition.

Middle East, Black Sea, Eurasia, Ukraine, Baltic, Turkey have the capability to reshape the future. Even if they are now in the middle of the fire, soon the devastations and impressive mass killings will be overcome and reconstruction taking the lead in many of these countries.

But why not underline the successful 30 years development and growth of China, a unique case in the last 500 years. China is the third world power, after European Union and USA, and has now similar problems we have encountered and are still facing nowadays, needs to find a political solution to reforming and giving voice to an accountability to its almost 1 billion 500 million inhabitants.

We really have to rethink the International Relations and the theories of Global Governance and Policy Choices, accepting the pluralities of institutional architectures and ways to give voice and accountability to the citizens. The European Union represents a “non Statehood” institutional governance, without even a Constitution and the Sovereignty belonging to the member countries. Do you believe the EU will change its architecture established by the Treaty of Rome in the future? This is an illusion of the antagonists of the different strategies and policies that were adopted right up to the Euro and the high welfare and technologic standards already achieved, even in the face of a crisis on 2008 that from the Atlantic arrived to Europe three years later and is now affecting East Asia. By 2020 we will be out of this tunnel everywhere in the world. To add a valuable contribution to this scientific debate is our very aim and scope.

Bodies and Organs

Editors Board

Giorgio Dominese, Editor in Chief, Chair Transition Studies Research Network, Venice, Italy; **Erhard Busek**, President IDM, permanent Jean Monnet Chair European Union, Vienna; **Richard Schifter**, former US Assistant Secretary of State and Founder SECI Balkan Initiative, USA; **Chen Zhimin**, Dean School of International Relations and Public Affairs (SIRPA), Fudan University, Shanghai; **Michael Plummer**, Director, Johns-Hopkins-University-SAIS, Bologna Centre; President American Committee on Asian Economic Studies (ACAES); **Wedigo de Vivanco**, former Dean International Relations Freien Universität, Berlin; **Gustavo Piga**, Head International Relations, Tor Vergata University, Rome; **Felix Unger**, President, European Academy Sciences and Arts, Salzburg; **Zhao Zhongxiu**, Vice President UIBE University, Beijing; **Carlo Carraro**, Environmental Economics at Ca' Foscari University of Venice, Director Initiative on Climate Change policy; **Alexey A. Gromyko**, European Section, Russian Academy of Sciences, Moscow; **Cui Zhiyuan**, School of Public Administration, Tsinghua University, Beijing; **Üstün Ergüder**, Sabanci University, Istanbul; **Osama Ibrahim**, President of Alexandria University; **Gregorio De Felice**, Chief Economist, Banca Intesa Sanpaolo, Milan; **Stefano Miani**, professor, Member of Executive Board, University of Udine; **Valerii V. Kopyika**, Director, Institute of International Relations, Taras Shevchenko National University, Kyiv; **Miomir Zuzul**, International University, Dubrovnik, Croatia; **Euston Quah**, Head, Department of Economics, Nanyang Technological University, Singapore; **Eliot Sorel**, George Washington University, Washington DC; **Ugur Erdener**, Rector Hacettepe University, Ankara, Turkey; **Zhu Feng**, Deputy Director Center International Strategic Studies, Peking University; **Gian Candido De Martin**, Faculty of Political Sciences, LUISS University, Rome; **Yeo Lay Hwee**, Director, EU Center, Singapore; **Ludvik Toplak**, Rector Alma Mater Europaea, Maribor; **Anatoly Adamishin**, President Association Euro-Atlantic Cooperation, Moscow; **Maurits Van Rooijen**, President Compostela Group of Universities, Spain; **Abdouli Touhami**, University of Sousse; **Corrado Cerruti**, Faculty of Economics, Tor Vergata University, Rome; **David Faraggi**, Rector University of Haifa, Israel; **Albert Marouani**, Antipolis, Nice, France; **Ioannis Mylopoulos**, Aristotele University of Thessaloniki; **Andrea Garlatti**, Director Departement of Economic Sciences and Statistics (DIES), Udine University, Italy; **Mohammed Zaher Benabdallah**, Université Moulay Ismail Meknès, Morocco; **Dragan Marušič**, Primorska University, Slovenia; **Sun Quixian**, School of Economics, PKU, Beijing; **Filiberto Agostini**, School Political Sciences, University of Padua; **Marjan Svetličič**, Head of International Relations Research Centre, Faculty of Social Sciences, University of Ljubljana; **Joseph Stiglitz**, Columbia University, New York; **Werner Weidenfeld**, Center for Applied Policy Research-CA, Munich; **Dai Changzhen**, Dean School of International Relations, UIBE University, Beijing; **Marisa Lino**, International Affairs Expert, former Undersecretary of State, Washington DC; **Theodore H. Moran**, School of Foreign Service, Georgetown University, Washington;

Abdullah Atalar, Rector, Bilkent University, Ankara; **Danijel Rebolj**, Rector University Maribor; **Marco Gilli**, Rector Politecnico di Torino; **Oxana Gaman-Golutvina**, MGIMO University, Moscow; **Victor Jakovich**, Coordinator BAC South East Asia and Eurasia, Vienna; **Enrico Geretto**, Dean Banking and Finance Course, University of Udine, Pordenone; **Keun Lee**, Economics Department, National University, Seoul; **Edward Sandoyan**, Faculty of Economics and Finance, Russian-Armenian State University, Yerevan; **Massimo Florio**, Public Economics and Jean Monnet Chair, State University of Milan; **Hungdah Su**, Taiwan National University, Taipei and Academia Sinica; **Chun Ding**, Centre European Studies, Fudan University, Shanghai; **Quang Minh Pham**, Rector School of Social Science USSH, Vietnam National University, Hanoi; **Flavio Presacco**, professor Mathematics, Statistic and Financial Mathematics of Uncertainty, University of Udine, Udine.

Editorial Board

Rajan Welukar, University of Mumbai; **Amr Al-Dawi**, Beirut Arab University, Lebanon; **Shen Dingli**, Vice Dean at the Institute of International Studies, Fudan University; **James T.H. Tang**, Management University, Singapore; **Jiazhen Huo**, Tongji University, Shanghai; **Anand Prakash**, University of Delhi; **Sudhir K. Sopory**, Jawaharlal Nehru University, New Delhi; **Masahiro Kawai**, Dean Asian Development Bank Institute, Tokyo; **Koji Miyazaki**, Faculty of Engineering, Kyushu Institute of Technology, Fukuoka Campus, Japan; **Zhongqi Pan**, Professor, School of International Relations and Public Affairs, Fudan University, Shanghai; **Bruna Zolin**, Ca' Foscari University, Venice; **Pang Zhongying**, Director of the Centre for New Global Governance of the Renmin University, Beijing; **Melina Decaro**, Department of Political Science, LUISS, Rome; **Yong Deng**, United States Naval Academy; **Jin-Hyun Paik**, National University, Seoul; **Bachtiar Alam**, Universitas Indonesia, Depok City; **Giuseppe Cataldi**, Vice Rector L'Orientale University, Naples; **Giuseppe Giliberti**, Faculty of Law, University Carlo Bo of Urbino; **Andreas Anayiotos**, Cyprus University of Technology, Lemesos; **Wang Hongyu**, School of International Relations, University of International Business and Economics (SIR-UIBE), Beijing; **Antonio La Bella**, Tor Vergata University, Rome; **Ren Xiao**, Institute of International Studies (IIS), Fudan University, Shanghai; **Eric Zimmermann**, Interdisciplinary Center Herzliya (IDC), Israel; **Wei-Wei Zhang**, Geneva School of Diplomacy, Centre for Asian Studies Geneva University; **Aldo J. Pérez**, Universidad de Belgrano, Buenos Aires; **Giovanni Perona**, Politecnico Torino; **Khani Mohammad Hassan**, Faculty of Islamic Studies and Political Sciences, Teheran; **Hui-Wan Cho**, National Chung Hsing University (NCHU), Taichung; **Joel Sandhu**, Global Public Policy Institute (GPPI) in Berlin; **Zhang Jianxin**, Professor of International Relations, Fudan University, Shanghai; **Tobias Debiel**, Institute of Political Science, University Duisburg-Essen, Germany; **Lucia Serena Rossi**, CIRDECE, University of Bologna; **José Miguel Sanchez**, Institute of Economics, Pontificia Universidad Católica de Chile, Santiago; **Labib M. M. Arafah**, Al-Quds University, Palestine; **Mohammed Dahbi**, Al Akhawayn University,

Ifrane, Morocco; Panagiotis Grigoriou, University of the Aegean, Lesbos, Greece; Jilani Lamloumi, Virtual University of Tunis; Rowaida Al Ma'aitah, Hashemite University, Jordan; Maria Amélia Martins-Loução, Department of Biology, University of Lisbon, Portugal; Alejandro del Valle Galvez, University of Cadiz, Spain; Jacek Ireneusz Witkos, Adam Mickiewicz University, Poland; Edmund Terence Gomez, University of Malaya, Kuala Lumpur; Saykhong Saynaasine, National University of Laos; Pan Suk Kim, Yonsei University, Seoul; Paolo Guerrieri, Istituto Affari Internazionali, Rome; Tien Dzung Nguyen, Vietnam National University, Ho Chi Minh City; Raphael F. Perl, Executive Director, PfP Consortium; Lu Jing, Institute of International Relations, China Foreign Affairs University (CFAU), Beijing; Zhao Huaipu, Director of EU Studies Center, China Foreign Affairs University, Beijing; Aleksandra Prašević, Faculty of Economics, University of Belgrade; Alessandro Colombo, Institute of Strategic Studies, State University, Milan; Joseph Shevel, President Galilee College, Nahalal; Olga Butorina, MGIMO University, Moscow; Ali Dođramaci, Bilkent University, Ankara; Karl Aiginger, Director, Austrian Institute of Economic Research, Vienna; Michele Bagella, Tor Vergata University, Rome; Bruno Barel, University of Padua; Leonardo Becchetti, Tor Vergata University, Rome; Giacomo Borruso, University of Trieste; Yang Ruilong, Dean of School of Economics, Renmin University of China, Beijing; Marina Brollo, Faculty of Economics, Udine University; Milan Bufon, Science and Research Center, University of Primorska; John-ren Chen, CIS, University of Innsbruck; Ozolina Žaneta, Commission of Strategic Analysis, Riga; Tiiu Paas, Institute of Economics, Tartu University; Luca Papi, Faculty of Economics, University of Ancona; Lorenzo Peccati, Department of Decision Sciences, Bocconi University, Milan; Rainer Schweickert, Institute for World Economics, Kiel; Olexander Shnyrkov, Taras Shevchenko National University, Kiev; Kristina Šorić, Zagreb School of Economics and Management-ZSEM, Croatia; Werner Stuflesser, President, European Academy of Bolzano; Ilter Turan, President IPSA, former Rector Bilgi University, Istanbul; Giovanna Valenti Nigrini, Director Flacso, Mexico City; Paul Vasilescu, Babeş-Bolyai University, Cluj-Napoca; Ladislav Kabat, Pan European University, Nitra; Jeff Lovitt, Director Pasos, Prague; Andrea Moretti, Department of Economics, University of Udine; Tatjana Muravska, Faculty of Economics, University of Latvia, Riga; Qian Yingyi, Dean of School of Economics and Management, Tsinghua University, Beijing; Ignazio Musu, Ca' Foscari University, Venice; Ahmet Evin, Sabanci University, Istanbul; Victoria De Grazia, Columbia University, New York; Liah Greenfeld, Boston University; Andrea Barbero, Department of Economics, Universidad Nacional del Sur, Bahía Blanca, Argentina; Djordje Popov, Faculty of Law, University of Novi Sad; Dejan Popović, Belgrade University; Jan Hanousek, CERGE EI, Charles University, Prague; Zlatan Fröhlich, The Institute of Economics, Croatia; Hui Zhang, Head International Relations, School of Economics, PKU, Beijing; Ernesto Tavoletti, Faculty of Political Science, Macerata University; Jih-wen Lin, Institute of Political Science, Academia Sinica, Taipei; Alfonso Giordano, Department of Political Science, Luiss University, Rome; Piero Susmel, University of Udine; Corrado Barberis, National Institute of Rural Sociology,

Rome; **Ernesto Chiaccherini**, President Accademia Italiana di Merceologia, Rome; **José M. Gil**, Director Centre de Recerca en Economia i Desenvolupament Agroalimentari, Barcelona; **Decio Zylbersztajn**, Head of the Center of Studies of Law, Economics and Organization at the University of Sao Paulo; **Rino Caputo**, Dean Faculty of Literature and Philosophy Rome Tor Vergata University; **Taizo Yakushiji**, Research Director Institute for International Policy Studies Tokyo; **Tomas Chiaqui Henderson**, Director Institute of Political Science, Pontificia Universidad Catolica, Santiago de Chile; **Attila Varga**, Business and Economics Faculty, Pécs University; **Oscar Godoy Arcaya**, School of Political Science, Pontificia Universidad Católica de Chile, Santiago; **Margherita Chang**, Department of Civil Engineering and Architecture, University of Udine; **Elena Sciso**, Political Science Faculty Luiss University Rome; **Liu Fu-kuo**, Division of American and European Studies, National Chengchi University Taipei; **John Micgiel**, Director East Central European Center, Columbia University, New York; **Placido Rapisarda**, Department of Economics and Quantitative Methods, University of Catania; **Mihaela Miroiu**, Dean Faculty Political Sciences, National School Political Administrative Studies, Bucharest; **Mojmir Mrak**, Economics Faculty Ljubljana University; **Nicola Lupo**, Political Science Faculty, Luiss University, Rome; **Ziya Önis**, Director Center Research Globalization Democratic Governance, Koç University, Istanbul; **Evan Berman**, National Cheng Chi University, College of Social Sciences, Taipei; **Volker R. Berghahn**, Department of History, Columbia University New York; **Wang Haiyan**, Director of International Cooperation Office, SEM-Tongji University, Shanghai; **Chang Tai-lin**, National Chengchi University, European Union Centre, Taiwan; **Mircea Maniu**, Department of Management of European Institutions, Babeş-Bolyai University, Cluj-Napoca; **Aigerim Shilibekova**, Director Center for International and Regional Studies, L.N. Gumilyov Eurasian National University, Astana; **Carlo Jean**, President Economic and Geopolitics Study Center-CSCE, Rome; **Ermelinda Meksi**, School of Economics, Tirana University; **Ivana Burdelez**, Head University of Zagreb Center Mediterranean Studies, Dubrovnik; **Ksenija Turkovic**, Vice Rector University Zagreb; **Dušan Lesjak**, Acting President, EMUNI-Euro Mediterranean University, Portorož, Slovenia;

Scientific Committee

Zongyou Wei, Shanghai International Studies University; **K. Sundaram**, Delhi School of Economics University of Delhi; **Ichiro Iwasaki**, Institute of Economic Research Hitotsubashi University; **Andrea Appolloni**, Tor Vergata University, Rome; **Kameka M. Dempsey**, International Affairs Association of Yale Alumni; **Tina P. Dwia**, Hasanuddin University; **Maria Birsan**, Centre for European Studies Alexandru Ioan Cuza University; **David Camroux**, Centre for International Studies and Research Paris; **Olga Carić** University Business Academy, Novi Sad; **S. Chandrasekaran**, Jawaharlal Nehru University, New Delhi; **Nabil Fahmy**, The American University in Cairo; **Marina Formica**, Università degli Studi di Roma Tor Vergata; **Kaoru Hayashi**, Bunkyo University; **Bambang Irawan**, University of Indonesia; **Vasile Isan**, Alexandru Ioan Cuza University; **Adrian Lalâ**, “Carol Davila” University Foundation; **Henry E.**

Hale, Institute for European, Russian and Eurasian Studies, George Washington University; **Roland Hsu**, Institute for International Studies Stanford University; **Dominick Salvatore**, Fordham University, New York; **Quang Thuan Nguyen**, Institute of European Studies, Vietnamese Academy of Social Sciences, Hanoi; **Nisha A. Shrier**, American Jewish Committee, Washington DC; **Eric Terzuolo**, Expert International Affairs, USA; **John W. Thomas**, John F. Kennedy School of Government Harvard University; **Carolyn Ban**, European Studies Center, University of Pittsburgh; **Larry Wolff**, Department of History, New York University; **Alessandra Gianfrate**, International Affairs expert, Rome; **Limei Gu**, Fudan University, Shanghai; **Ankang Guo**, Nanjing University; **Weiyen Hou**, Zhengzhou University, China; **Min Hua**, Fudan University; **Gao Liping**, Nanjing Normal University; Beijing; **Ming Lu**, Department of Economics, Fudan University; **Songjian Ma**, Zhengzhou University, China; **Changhe Su**, Shanghai International Studies University; **Ruiguang Wang**, Tongji University Shanghai; **Wai Keung Li**, University of Hong Kong; **Bing Ling**, Sydney Law School; University of Sydney; **Yun-wing Sung**, Chinese University of Hong Kong; **Amintabh Kundu**, School of Social Sciences, Jawaharlal Nehru University, New Delhi; **Bulat K. Sultanov**, Institute of World Economy and Policy. Almaty; **Federica Santini**, Ernst&Young, LUISS University Rome; **Ljiljana Vidučić**, Faculty of Economics, University of Split; **Hong Lee Jae**, Seoul National University; **Younghoon Rhee**, School of Economics, Seoul National University; **Amit Prakash**, Centre for the Study of Law and Governance, Jawaharlal Nehru, Delhi; **Bohdan Krawchenko** University of Central Asia, Bishkek; **Joyashree Roy**, Jadavpur University; **Amita Singh**, Centre for the Study of Law and Governance, Jawaharlal Nehru University, New Delhi; **Alberto Dreassi**, University of Udine; **Kenji Hirata**, Tokyo University; **Liga Sondore**, Centre for European and Transition Studies, University of Latvia, Riga, **Wang Yong**, Center International Political Economy, Peking University; **Mehmet Huseyin Bilgin**, Faculty of Political Sciences, Istanbul Medeniyet University; **Fumiaki Inagaki**, Keio Research SFC, Shonan Fujisawa Campus; **Rashid Amjad**, Pakistan Institute of Development Economics, Islamabad; **Chwen-Wen Chen**, National Taiwan University; **David W.F. Huang**, Institute of European and American Studies Academia Sinica; **Francis Yi-hua Kan**, Institute of International Relations, National Chengchi University; **Yu-Cheng Lee**, Institute of European and American Studies, Academia Sinica, Taipei; **Chih-yu Shih**, National Taiwan University; **Thi Kim Anh Nguyen**, College of Economics, Vietnam National University; **Andrei Melville**, Centre for International Education, Higher School of Economics, Moscow; **Mustafa K. Mujeri**, Bangladesh Institute of Development Studies; **Aleksandra Parteka**, Gdansk University of Technology; **Adina Popovici**, West University of Timisoara; **Victoria Seitz**, California State University, San Bernardino; **Nicolae Tapus**, Politehnica University of Bucharest; **Enrico Traversa**, University of Rome "Tor Vergata"; **Stacy C. VanDeever**, University of New Hampshire; **Jian Wang**, Shandong University; **Bambang Wibawarta**, University of Indonesia; **Konstantin Yurchenko**, Ural State University, Russia; **Liuhua Zhang**, China University of Political Science and Law, Beijing; **Khadijah Al-Amin-El**, Elliott School of

International Affairs George Washington University; **Galib Efendiyev**, Open Society Institute-Assistance Foundation Azerbaijan; **Arif Yunusov**, Institute of Peace and Democracy, Baku; **Minghao Sui**, Tongji University, Shanghai; **Xiaohui Tian**, Beijing Foreign Studies University; **Atilla Silkü**, Ege University; **Steven C. Smith**, Institute for International Economic Policy, George Washington University; **Megumi Suenaga**, Research Institute for Sustainability Studies, Osaka University; **Timothy S. Thompson**, European Studies Center, University of Pittsburgh; **Alejandro Vivas Benitez**, Pontificia Universidad Javeriana, Bogotá; **Alexander Izotov**, Saint-Petersburg State University; **Vadim Radaev**, Moscow State University Higher School of Economics; **Giovanni Salvetti**, Rothschild & Cie Investment Banking Division, Head Russia and CIS; **Sergei F. Sutyurin**, World Economy Saint-Petersburg State University; **Yulia Vymyatnina**, European University at St. Petersburg; **Vladimir Popov**, New Economic School, Moscow; **Paula Dobriansky**, John F.Kennedy School of Government, Harvard University, Boston; **Richard B. Doyle**, Naval Postgraduate School Monterey; **Victor Friedman**, University of Chicago; **Yeoh Seng Guan**, School of Arts & Social Sciences, Monash University Malaysia, Selangor; **Sataporn Roengtam**, Faculty of Humanities and Social Sciences, Khon Kaen University; **Thy Naroeun**, Royal University of Phnom Penh; **Kageaki Kajiwara**, Dean School of Asia 21, Kokushikan University in Tokyo; **Kyung-Taek Oh**, Chonnam National University; **Franz Lothar Altmann**, International Expert, Munich; **Bostjan Antoncic**, Primorska University, Koper; **Rossella Bardazzi**, Economics and Management Department, University of Florence; **András Blahô**, Doctoral School of International Relations, Corvinus University, Budapest; **Andrea Ciampani**, Department of Economics, Political Sciences and Modern Languages, LUMSA, Rome; **Giovanni Costa**, Padua University; **Daniel Daianu**, National School for Political Studies and Public Administration (SNSPA), Bucharest; **Marco De Cristofaro**, University of Padua; **Dejan Dinevsky**, University of Maribor; **Anto Domazet**, Economic Institute, University of Sarajevo; **Pierluigi Draghi**, Ca' Foscari University, Venice; **Jaroslava Durčáková**, University of Economics, Prague; **Atilla Eralp**, Center for European Studies, Middle East Technical University, Ankara; **Beáta Farkas**, Department World Economy Economic European Integration, Szeged University; **Pier Francesco Ghetti**, Ca' Foscari University, Venice; **Petar Filipić**, Faculty of Economics, Split University; **George Giannopoulos**, Hellenic Transport Institute and Aristotle University, Thessaloniki; **Marco Giansoldati**, Ca' Foscari University, Venice; **Maya Gonashvili**, Faculty of Economics, Tbilisi State University; **Olga Gradiska Temenugova**, Faculty of Economics, Ss. Cyril and Methodius University, Skopje; **Jean-Paul Guichard**, Centre d'Etudes en Macroéconomie et Finance Internationale (CEMAFI), Université de Nice Sophia Antipolis; **Sergei Guriev**, New Economic School, Moscow; **Josef Hochgerner**, Chairman ZSI-Centre Social Innovation, Vienna; **Julius Horvath**, Central European University, Budapest; **Piero Ignazi**, Faculty of Economics, University of Bologna; **Jiří Patočka**, Economics University, Prague; **Kalman Dezséri**, Institute for World Economics, Budapest; **Gianclaudio Macchiarella**, Interdisciplinary Center for Balkan and International Studies, Ca' Foscari University, Venice; **Stefano Magrini**, Faculty of Economics, Ca'

Foscari University, Venice; **Sanja Maleković**, Institute for International Relations (IMO), Zagreb; **Marco Mazzarino**, Planning Faculty, IUAV University, Venice; **Neno Pavlov Nenov**, Tsenov Academy of Economics, Svishtov; **Fatmir Mema**, Faculty of Economics, University of Tirana; **Evangelios Nikolaidis**, Department of Economics, University of Crete; **Gayane Novikova**, Center for Strategic Analysis, Yerevan; **Krzysztof Palecki**, Jagiellonian University, Krakow; **Anita Pelle**, University of Szeged; **Petr Musilek**, University of Economics, Prague; **Alessandro Politi**, Strategic Analyst, Rome; **Horia F. Pop**, Babeş-Bolyai University, Cluj-Napoca; **Otello Campanelli**, Tor Vergata Rome University; LUISS University, Rome; **Marta Bordignon**, Tor Vergata Rome University, LUISS University Rome; **Amrita Lambda**, JNU, New Delhi; **Radu Liviu**, Babeş-Bolyai University, Cluj-Napoca; **Veronica Rebreanu**, Faculty of Law, Babeş Bolyai University, Cluj-Napoca; **Zlatan Reic**, Economic Faculty, University of Split; **Alexander Rogach**, National Taras Shevchenko University, Kiev; **Bobek Shuklev**, Faculty of Economics, Ss.Cyril and Methodius University, Skopje; **Olena Slozko**, IIR, Taras Shevchenko National University, Kiev, Ukraine; **Andrés Solimano**, Economic Commission for Latin America and the Caribbean (CEPAL), Santiago de Chile; **Julide Yildirim**, Department of Economics, TED University, Ankara; **Dragomir Sundać**, Faculty of Economics, Rijeka University; **Ljubica Šuturkova**, Ss.Cyril and Methodius University, Skopje; **Tanja Mišević**, Faculty of Political Science, University of Belgrade; **Binnaz Toprak**, Bahgeqehir University, Istanbul; **Vittorio Torbianelli**, University of Trieste; **Kako Tsomaia**, Faculty of Economics, Tbilisi State University; **Dima Daradkeh**, Department of Banking and Finance, Yarmouk University, Irbid, Jordan; **Konstantinos Velentzas**, University of Macedonia, Thessaloniki; **Veselin Vukotić**, Economics Faculty, Podgorica University; **Sergey Yakubovskiy**, Odessa National University; **Raffaele Matarazzo**, Research Fellow IAI - Istituto Affari Internazionali Roma; **Florian Gruber**, Centre for Social Innovation, Vienna; **Matteo Meng-jen Chang**, EU Centre at Fu Jen Catholic University, Taipei; **Marina Schenkel**, Department of Economic Sciences, Udine University; **Roberto Camagni**, Politecnico di Milano; **Laura Ziani**, Udine University; **Barnard Turner**, EU-Centre National, University of Singapore; **Fabrizio Mattesini**, Faculty of Economics, Tor Vergata University, Rome; **Wang Dashu**, School of Economics, Peking University; **Yang Yao**, Deputy Director, National School of Development/CCER, Peking University; **Maurizio Maresca**, Faculty of Law, Udine University; **Richard Doyle**, Naval Postgraduate School, Monterey, California, USA; **Salvatore Abbruzzese**, Faculty Sociology, University Trento; **Irina Nasadyuk**, Department of World Economy and International Economic Relations, Odessa National University; **Radmila Jovančević**, Head Department Macroeconomics Economic Development, University Zagreb; **Wu Chengqiu**, School of International Relations and Public Affairs (SIRPA), Fudan University, Shanghai; **Yuriy Bilan**, Economics Faculty, University Szczecin, Poland

Journals Authors with Transition Academia Press 2014-2019

Ákos Kengyel, Associate Professor, Jean Monnet professor of European Economic Integration Institute of International Studies, Corvinus University of Budapest, Hungary; **Alice Spangaro**, Department of Economics and Statistics, University of Udine; **Andrea Molent**, Dipartimento di Management, Università Politecnica delle Marche, Italy; **Andrzej Cieślak**, University of Warsaw, Warsaw, Poland; **Ani Avetisyan**, Department of Economic Theory and the Issues of Transition Period Economies, Institute of Economics and Business, Russian-Armenian University, Yerevan, Armenia; **Anthony Abbam**, Department of Economics Education, University of Education, Winneba-Ghana; **Antonella Pocecco**, Department of Human Sciences (DISU), Udine University, Italy; **Antonino Zanette**, Dipartimento di Scienze Economiche e Statistiche, Università di Udine, Italy; **Armine Aghajanyan**, Department of Economic Theory and the Issues of Transition Period Economies, Institute of Economics and Business, Russian-Armenian University, Yerevan, Armenia; **Avag Avanesyan**, Russian-Armenian (Slavonic) University, Yerevan, Armenia; **Avagyan Harutyun**, American University of Armenia, Yerevan, Armenia; **Aviral K. Tiwari**, IBS Hyderabad, a Constituent of IFHE (Deemed to be) University, Hyderabad, India; **Awal Hossain Mollah**, Associate Professor and Chair, Dept. of Public Administration University of Rajshahi, Bangladesh; **Bence Zuti**, Faculty of Economics and Business Administration, University of Szeged, Hungary; **Bernadette Andreosso-O'Callaghan**, Ruhr University Bochum, Germany; **Blerim Halili**, College Pjeter Budi, Pristina, Kosovo; **Chiara Cancellario**, Ph.D. Candidate in Political Theory and Political Science LUISS – Department of Political Science; **David Goginashvili**, Keio University, SFC Research Institute, Tokyo, Japan; **Deepak Iyengar**, Department of Finance and Supply Chain Management, College of Business and Economics, Central Washington University, Ellensburg ; **Der-Chin Horng**, Institute of European and American Studies, Academia Sinica, Taiwan; **Elen Karayan**, BA student in Business at American University of Armenia, Yerevan; **Elvin Afandi**, Islamic Corporation for the Development of the Private Sector (ICD), Jeddah, Saudi Arabia; **Emmanuel Carsamer**, Department of Economics Education, University of Education, Winneba-Ghana ; **Enzo Valentini**, University of Macerata, “Department of Social Sciences, Communication and International Relations”, Macerata, Ital; **Fumitaka Furuoka**, Asia-Europe Institute, University of Malaya, Kuala Lumpur; **Gábor Kutasi**, Corvinus University of Budapest, Hungary; **Gao Yan**, Ph.D. Professor at School of Economics and Management, Northwest University; **Garima Sharma**, Centre for the Study of Law and Governance Jawaharlal Nehru University, New Delhi; **Gilles Paché**, CRET-LOG, Aix-Marseille University, France; **Giovanni Covi**, Department of Economics and Finance, University of Verona, Italy Market Operations Analysis, European Central Bank, Frankfurt Am Main; **Hanafiah Harvey**, Pennsylvania State University, Mont Alto; **Ho-Ching Lee**, Center for General Education, National Central University, Chungli, Taiwan; **Huu Tuyen Duong**, University of Transport & Communications, Hanoi, Vietnam; **Ikuo Kato**, Center for Economic Growth Strategy, Yokohama National University, Japan; **Imlak Shaikh**, Department of Humanities and Social Sciences, Indian Institute of Technology Bombay; **Imran Naseem**, Department of Management Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan; **Imre Lengyel**, Faculty of Economics and Business Administration, University of Szeged; **Iqtidar Ali Shah**, Department of Business Studies, Ministry of Higher Education, CAS – Salalah, Sultanate of Oman; **Irina B. Petrosyan**, Department of Economic Theory and the Issues of Transition Pe-

riod Economies, Institute of Economics and Business, Russian-Armenian University, Yerevan, Armenia; **Iryna Gauger**, Hamburg School of Business Administration; **Iryna Harechko**, Assistant at Lviv Polytechnic National University and Ivan Franko National University of Lviv, Ukraine; **Ivan Kalaur**, Department of Civil Law and Procedure Ternopil National Economic University, Ternopil, Ukraine; **Jan Jakub Michalek**, University of Warsaw, Warsaw, Poland; **Jana-Larissa Grzeszkowiak**, Ruhr-Universität Bochum | RUB Fachbereich VWL; **Julien Martine**, Paris Diderot University, Paris, France ; **Junaina Muhammad**, Department of Accounting and Finance, Faculty of Economics and Management, Universiti Putra Malaysia (UPM), Selangor, Malaysia; **Kamelia Assenova**, PhD Associate Professfor, University of Ruse, Ruse, Bulgaria NBU, Sofia, Bulgaria UNWE, Sofia, Bulgaria; **Kazuhiro Kumo**, Institute of Economic Research, Hitotsubashi University, Japan; **Khalid Zaman**, Department of Economics, University of Sargodha, Lahore, Pakistan.; **Kirill Leonidovich Tomashevski**, Professor of the Department of Labour and Economic Law of the International University “MITSO”; **Klodian Muço**, Aleksander Moisiu University, L. I, Rruga e Currilave, Durres, Albania; **Kok Sook Ching**, Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah; **Komeil Deghani**, Department of Economics, Faculty of Economics and Management, Universiti Putra Malaysia (UPM), Selangor, Malaysia; **Lakshminarayana Kompella**, School of Management, National Institute of Technology Warangal, Warangal, India; **Laura Bergnach**, Department of Human Sciences (DISU), Udine University, Italy; **Leila Chemli**, Faculty of Sciences Economic and Management, Sousse University, Tunisia; **Leonard Hammer**, University of Arizona, The Arizona Center for Judaic Studies; **Lida A. Mnatsakanyan**, Russian-Armenian University, Yerevan, Armenia; **Lidia M. Davoyan**, Senior Lecturer , Russian-Armenian University Yerevan, Republic of Armenia ; **Liying Zhang**, Professor of Law China University of Political Science and Law, Beijing, PRC; **Ludovic Goudenège**, Fédération de Mathématiques de l'École Centrale Paris, France ; **Majid Kermani**, Islamic Development Bank (IDB) Group, Jeddah, Saudi Arabia; **Manoj Motiani**, Indian Institute of Management, Indore, India; **Marco Braggion**, Department of Economics, Ca' Foscari University, Venice, Italy; **Maria Prezioso**, Dept. of Management and Law Economics Faculty, University of Rome “Tor Vergata”, Rome; **Marta Sandoyan**, Senior lecturer at the RAU Institute of Economics and Business PhD student at the Russian-Armenian University, Yerevan, Armenia ; **Mazlina Abdul Rahman** Department of Economics, Faculty of Economics and Management, Universiti Putra Malaysia (UPM), Selangor; **Melati Ahmad Anuar** Faculty of Management, University Technology Malaysia; **Mihai Mutascu**, LEO (Laboratoire d'Economie d'Orleans), University of Orleans, France FEAA and ECREB, West University of Timisoara, Romania; **Miklós Lukovics** Faculty of Economics and Business Administration, University of Szeged, Hungary; **Mohamed Aslam**, Faculty of Economics and Administration, University of Malaya, Malaysia; **Mohammad Tahir** Faculty of Management, University Technology Malaysia; **Muhammed Jumaa**, City University College of Ajman, UAE; **N. Reznikova**, Chair of World Economy and International Economic Relations of the Institute of International Relations Taras Shevchenko National University Kieve, Ukraine, Kyiv; **Nando Prati**, Department of Economics and Statistics, University of Udine, Udine, Italy ; **Nataliia Fedorchenko**, Department of Civil Law and Legal Regulation of Tourism Kyiv University of Tourism, Economics and Law, Kiev, Ukraine; **Nehat Maxhuni**, College “Biznesi”, Pristina, Kosovo; **Nicusor-Sever-Cosmin Florea**, School of International Relations, University of International Business and Economics, Beijing, PRC; **O. Borzenko**, Top Research Adviser Institute of

Economy and Forecasting NAS, Kiev, Ukraine; **Okhikyan Lilit**, Russian-Armenian (Slavonic) University; **Oleksandr I. Rogach**, Chair of the Department of International Finance, Institute of International Relations, Taras Shevchenko National University of Kyiv, Ukraine; **Pavlo V. Dziuba**, Department of International Finance, Institute of International Relations, Taras Shevchenko National University of Kyiv, Ukraine; **Pei-Fei Chang**, Institute of European and American Studies, Academia Sinica, Taipei; **Philippe Debroux**, Soka University, Faculty of Business, Japan; **Pinaki Roy**, IIM Ahmedabad, Gujarat, India; **Puja Padhi**, Department of Humanities and Social Sciences, Indian Institute of Technology Bombay; **Qaiser Munir**, Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah; ; **Rabaa Chibet** PhD Student Department of Economics, Faculty of Economic Sciences and Management; **Rahul Nilakantan**, Gokhale Institute of Politics & Economics, Pune, India; **Safet Kurtovic**, University of Travnik; **Saifuzzaman Ibrahim** Department of Economics, Faculty of Economics and Management, Universiti Putra Malaysia (UPM), Selangor, Malaysia; **Sandoyan E.M.**, Department of Economics and Finance, Institute of Economics and Business Russian-Armenian (Slavonic) University, Yerevan, Armenia; **Sead Talovic**, Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina; **Serge Rey**, Université de Pau et des Pays de l'Adour, Pau, France; **Sergey B. Kulikov**, Dean of University-wide faculty Tomsk State Pedagogical University, Russia; **Serhat S. Cubukcuoglu**, The Fletcher School of Law and Diplomacy Tufts University, Medford, USA; **Shiho Futagami**, Graduate School of International Social Sciences Yokohama National University, Japan; **Shujaat Abbas**, Department of Economics, University of Karachi, Pakistan; **Simonyan Vardan M.**, Russian-Armenian (Slavonic) University, Yerevan, Armenia; **Sophie Nivoix**, Faculty of Law and Social Sciences, Poitiers University, France; **Stefano Lucarelli**, University of Bergamo, "Department of Management, Economics and Quantitative Methods", Bergamo, Italy; **Stefano Miani**, Department of Economics and Statistics, University of Udine, Italy; **Suleyman Bolat**, FEAS, Aksaray University, Aksaray, Turkey; **Suresh KG**, Assistant Professor, IBS-Hyderabad IFHE University, Hyderabad, India; **Szabolcs Imreh**, Faculty of Economics and Business Administration, University of Szeged; **Tatsuro Debroux**, Department of Law, Pompeu Fabra University, Barcelona, Spain; **Thomas J. Hyclak**, College of Business and Economics Lehigh University, Bethlehem, USA; **Tran Khanh**, Asso. Prof., Senior Research Fellow, Institute of Southeast Asian Studies, Vietnam Academy of Social Sciences; **Tran Khanh**, University International Business and Economics, Beijing; **V. Panchenko**, Director of Dnipro Development Agency, Dnipro City, Ukraine; **V. Panchenko**, Faculty Shanghai Administration Institute, Shanghai, PRC; **Vera A. Adamchik** University of Houston-Victoria, USA; **W.N.W. Azman-Saini** Department of Economics, Faculty of Economics and Management, Universiti Putra Malaysia (UPM), Selangor, Malaysia; **Walter Morana**, Master's Degree in International Relations at LUISS Guido Carli University, Freelance researcher at the Research Centre on International and European Organizations (CROIE LUISS; **Wang Li Hong**, Northwest University, Shan Xi, China; **Wang Ziming**, Chinese Academy of Social Science, University of International Business and Economics, Beijing, PRC; **Wei Zhao**, Associate Professor of International Management ESSCA Ecole de Management, Angers, France; **Xiao Wei**, China Institute for Actuarial Science & School of Insurance, Central University of Finance and Economics, Beijing, China; **Yang Furong**, University of International Business and Economics, Beijing, PRC; **Yuan Miao**, University of International Business and Economics, Beijing, China; **Yukiko Muramoto**, Graduate School of Humanities and Sociology, The

*University of Tokyo, Japan; **M. Rubtsova**, PhD (econ.), Associated professor, Associated professor at International Business Department, Institute for International Relations at Kyiv National Taras Shevchenko University, Ukraine, Kyiv;*

Editorial Staff

***Andrea Lattacher**, translation and editorial referent, Vienna; **Simonetta Dominese**, MS Business Administration, Ca' Foscari University of Venice, Italy; **Zihan Wang**, UIBE University, Beijing; **Dima Daradkeh**, Yarmouk University, Irbid, Jordan; **Penny Chen**, EU Centre, National Taiwan University, Taipei; **Yi Sun**, International Relations MA, Freie Universität, Berlin, Germany.*

Publications

JTSR - *Journal Transition Studies Review* - Transition Studies Research Network, Venice, Italy

JGPG - *Journal Global Policy and Governance* - Transition Studies Research Network, Venice, Italy

Journal Global Policy and Governance

Papers

G. Dominese	Innovation and Growth in a Dual Technologies Scenario: Civil and Military top Advanced Industries Competition	3
K. Assenova	Easy Birds or Sluggish Bears – Credit Boom or Restriction? Credit cycle – evidence from Central and Eastern Europe	45
D. W. H. Alrabadi; A. M. Alandali	The Effect of Foreign Ownership on Corporate Debt Maturity: Evidence from the Companies Listed in Amman Stock Exchange	55
I. Dokalskaya	Public Performance Evaluation: from the International Debate to the Italian Legal Context	67
T. Debroux	The Abe administration’s policy about the Senkaku Islands and a Role Theory	83
S. Mansoor	Does Aid Work in Conflict? Analysis of Pakistan\	101

Opinion

F. Ayala	Towards a Peaceful Change of the International Order	119
F. Ayala	The Difficult Relationships Between Iran And USA	125