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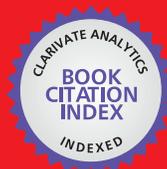
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# The World Financial Crisis: Impacts on GDP and International Trade in Taiwan

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## Abstract

Today's financial markets are—due to globalisation—more interlinked than ever before. The US-based subprime mortgage crisis 2007–2009 is therefore developed to a global crisis. This study aims to investigate the effects of that crisis on Taiwan, focusing specifically on GDP and Taiwan's international trade. Analysis results in GDP to have practically fully recovered to precrisis levels. Taiwan's international trade is stagnating in the post-crisis era. Investigations have further shown that Taiwan is becoming more dependent on China, a trend that was fuelled by the crisis.

**Keywords:** Taiwan, world financial crisis, PRC-ROC relationship

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## 1. Introduction

Economies worldwide are affected by crises on a regular base [1]; however, the world economies have never been as interlinked as they are today [2]. The frequency of crises is raising already for many years [3, 4]. Any crisis in one country may affect other economies and therefore the world [5]. "In the last 50 years, worldwide about 40 events occurred that somehow showed traits of financial crisis (FC)" [6, p. viii]. In this study the term 'world financial crisis' (WFC) refers to the crisis that has been caused by the subprime mortgage crisis of 2007 in the USA. Every economy—even though or just because of globalisation—needs its own plan to face FC on a national and international level mainly depending on the extent of globalisation of its financial markets and economy [1]. Up to this point, only limited enquiries have been pursued specialising on the effects of the WFC on the Republic of China (ROC) focusing on the potential long-term consequences of the crisis for that country. Consequently, this research aims to fill this knowledge gap. To be able to be as thorough as possible in the

understanding of these long-term consequences, the focus of the research has been narrowed down to GDP and international trade.

Throughout the study, all investigations followed a strict plan developed out of the research gap and the resulting objectives and questions. First of all existing literature has been critically reviewed. After addressing FC and its origins in general, previous investigations about the WFC and the underlying forces in particular were revised. As for Taiwan, the focus was the country's reaction to the WFC. Secondary data about the Taiwanese economy focusing on the effects of the WFC was critically investigated. This analysis focussed on factors of major importance in economic change after crises. Next to these aspects of change relating to crisis in general, a specific criterion of the postcrisis relationship between the PRC and the ROC was investigated. The research of this factor also allowed investigating economic postcrisis trends on Taiwan including their potential consequences. The conclusion makes summarising statements about Taiwan's economy and explains the effects of the crisis including economic trends of the country.

## 2. Literature review: WFC and Taiwan

This chapter gives an overview of the existing literature referring to the WFC and its underlying causes. Furthermore, the background of the economy of the ROC—also referred to as Taiwan—including its historical development [7, 8] and the structure of its financial market are thoroughly evaluated as preparation of the genuine research. Particular emphasis has been put on the factors of analysis in unconventional FC models. The main focus has been put on the cross-strait relationship between the ROC and the PRC which was also affected by the crisis.

### 2.1. The WFC

The WFC is a US-caused crisis that had global effects. Never in history has so much economic wealth been destroyed in such a limited timeframe [9]. Literature agrees that this has been the worst financial crisis since the great depression [10–13]. Failing regulations [14] and bad management of a subprime residential mortgage market innovation [10, 15, 16] and a bursting bubble in the US housing market initiated the US credit crunch causing the US GDP to decline by 30%. Globally, within 2 months—namely, July and August 2007 [17]—an estimated loss of \$10 trillion, representing 40% of the wealth in the global financial markets, has been generated [18]. In China 10 million of industry-employed workers had lost their jobs due to the crisis [19], so 'the poorest as always pay the most' [Dominique Strauss-Kahn (at that time, the Managing Director of the International Monetary Fund (IMF)) in [19] min. 73]. Andrew Sheng who is part of the China Banking Regulatory Commission stated after the crisis that 'they were having massive private games at public loss' [in [19] min. 8]—with 'they' most likely referring to Wall Street. However, China in the literature is not only seen as a loser of the crisis. Porsche-Ludwig who is working in science of law, science of politics and psychology and teaches political sciences and public law at the National Dong Hwa University in Taiwan [20] refers China as the biggest winner of the crisis [21]. Mitroff—a specialist on risk management and crises [22]—and Alpaslan—whose research focuses on large-scale crises [23]—explain the WFC to be a result of a 'culture of selfishness and narcissism' [24] and conclude that there is a

necessity to develop towards a 'culture of trust' [24]—which might be the only way to develop an economically sustainable future.

## 2.2. The republic of China-Taiwan

Politically, Taiwan is in a difficult situation, having been diplomatically isolated by the PRC resulting in no diplomatic relations with any Asian country [25], the USA [25–28] or any European country apart from Vatican city [29]. Historically and due to the background of the government [28], it is seen as a part of China (PRC) [27, 28, 30]—even though its history has only small connections to the history of the PRC [31]. However, PRC's potential invasion in the ROC is a threat to international security [27]. These political issues are of major importance to Taiwan, and any change—also in people's perception about the relationship with China—is significant for this macro-politically complicated relationship.

In the 1970s and 1980s, the economy was about as much an industrial economy as it was a service economy ([32]: 1973–1990: services 47.9%; industry 44.3%; agriculture 7.8% [33]). By 2000 Taiwan's economy entirely developed into a service economy ([34] (2011): services 68.8%; industry 29.5%; agriculture 1.8%). The ROC is an export-driven nation, small- and medium-sized firms achieved stunning results due to their global industrial connections [26]. From less than 10% exports of GDP in 1960, the economy changed to achieve almost 65% exports in 2007 [35]. A majority of the Taiwanese exports are in the information and communications technology (ICT) sector [36, 37]. The right of war that had so far set out any democratic election on a national level ended in 1987 after 38 years and in 1996 the first independent election in Taiwan took place [28]. These elections proved that Taiwan successfully went through the transition from a dictatorship to a democratically governed country [28] going hand in hand with an economic liberalisation [38]. In the Global Competitiveness Ranking for 2012–2013, it was ranked to be the 13th most competitive economy amongst 144 participating nations [39]—a fact that might be a result of the economic miracle in combination with the political liberalisation of the country. The developments on Taiwan have severe consequences for the future of Mainland China. A reunification of Taiwan and China into one China—so the position of the ROC—is only possible when the PRC becomes a democracy [40]. Taiwan positions itself as an independent country; however, according to Chiu and Sun [8], the PRC will use military forces if Taiwan declares independence officially. It is unlikely that Taiwan's economy is to be isolated [41]; however, the extent of Taiwan's global political isolation is a result of its own policy choices and closure towards China, not only from Chinese blocking [41]. The difficult relationship between China and Taiwan [42] developed into an 'asymmetric interdependence' [7]. The question of 'how to manage the increasingly intertwined economic relationship between China and Taiwan' [27] developed into the main issue in the ROC politics. Since 'the opening up of China's economy to market forces in the 1980s [and 2009] Taiwanese businesses have invested around \$100 billion in [Mainland] China' [27]. As in about 2009, the economic connections between Taiwan and Mainland China became closer, media worldwide even referred the two countries as one 'Chaiwan' [37, 43]. However, the USA and Japan on the National People's Congress 'renegotiated their security alliance for the first time since 1960' [27] as China's threat to Taiwan is a threat to their own and international security.

Taiwan's financial industry is growing steadily; even though it does not have 'world-ranked national champions among its [financial] institutions, some are large enough to cause systematic stress should they fail' [44]. Currently, Taiwan still has government-controlled banks, even though the number is declining as the country has privatised and intends to continue to privatising its banks [45]. Taiwan further intended to become 'a regional hub for fundraising and asset management' [44]. These intentions paid off with an increase of foreign stock ownership from 19.8% in 2001 to 32.9% in 2007. However, the sales behaviour in the Taiwanese banking industry is shortsighted, as shortsighted as the one that caused the US financial crisis. Sales agents paid their commission at the time of sale which results in them not knowing the product and selling in order to earn the commission no matter how this might affect the client [44].

### 2.3. ROC reactions to the WFC

At the beginning of the WFC, Taiwan's mid-sized economy was relatively healthy and particularly successful in international trade [44]. The NT\$, as also explained by the literature, was less volatile before, during and after the FC than the currencies of other nations [44], which is due to its more internationally owned stocks. The country further went into the crisis with a number of government-owned banks. These served as an advantage during the crisis as they easily could be used to imply new government regulations; other banks were forced to follow [44].

In order to overcome the effects of the crisis and not to face as heavy consequences in the future, Taiwan developed a policy plan including short-term policies and middle-/long-term policies. According to Wang and Lin [5], Taiwan's Ministry of Economic Affairs (MOEA) published a presentation about a policy plan [46] explaining the steps of action in the different policies. In the short term, the country had four strategic goals to minimise the immediate effects of the WFC. First, the stimulation of consumer spending, second—in order to reduce the number of company closures—secured funding for SMEs, third the promotion of investment and fourth the increase of exports. Consumer spending was also supported via consumption coupons, which improved sales in the short term. For the medium term, a cross-strait trading agreement with China was planned. Detractors see that this so-called economic corporation framework agreement (ECFA), implemented in 2010, may result in a 'buyout' of Taiwan [47]. However, the agreement to reduce cross-border taxes was necessary, as China had already made free trade zone agreements with the Association of Southeast Asian Nations (ASEAN) region. According to Wang and Lin, the government is aware that intensifying trade with the PRC is an opportunity and danger at a time [5]. The currently employed policies also link to the long-term development of the country and have consequences for the national identity of the Taiwanese citizens. To find out more about the long-term strategy, please consult further readings [48, 49]. The structure of the long-term strategy shows that the government intends to diversify the Taiwanese economy. This might improve the country's situation—also when facing future crises.

### 2.4. Resulting strategy for primary research

In this study for the best understanding of Taiwan's postcrisis situation, it was decided to focus on the change of GDP [1, 50] and international trade [1, 51]. Analysing these factors rather than investigating in the frame of a FC model was perceived to be matching given the background of Taiwan, its connection to China and also the time limits of the study.

### 3. Discussion of the research methodology and methods

The study as such was a formal study answering the research question [52]—including a descriptive account of the current situation. An explorative element [52] also forms part of the research as it discovers a range of future research tasks (see Section 5.2). The study is supposed to reflect on the effects of the WFC (independent variable) on Taiwan (dependent variable)—including trends for its future. It was decided to conduct quantitative longitudinal investigations based on secondary data only.

#### 3.1. Research philosophy and approach

The main purpose of this secondary study is to investigate and understand the WFC effects on the economy of Taiwan and developing economic trends for the country. Secondary data has been analysed graphically in order to investigate the research questions. Focus has been put on the criteria shown in **Table 1**. Further, the understanding of the connection between the PRC and ROC was significant. The aspects measured in that relationship are not primarily of economic nature but, however, are necessary in order to include all potential developments for the country and its economy. This is also important given that China’s politics keep aiming for a reintegration of Taiwan into China [47]. This unique relationship of interdependence (PRC-ROC) can be seen as the moderating variable because the connection between the two countries is complex and because the influences of China on Taiwan’s postcrisis situation are of paramount importance. The influence of China on the effects of the WFC on the ROC does not seem contributory at first; however, many of the effects on Taiwan come due to the strong dependence of the ROC on the PRC. The effects, discovered by using a realism approach were rationalised with regard to Taiwan’s historical and economic background. This research is using an inductive approach: Conclusions are based on research results and explain the facts that investigations discovered [52]. Wherever possible the conclusions are based on the combination and linkage of multiple sets of data.

#### 3.2. Relevance of the study

The study is highly relevant for academia and management alike. Academically, it is important for two reasons: First, there only is limited research investigating the effects of the WFC on Taiwan, and almost none is looking at it after 2011. Thus, there is a gap in research. Second,

Research criteria	Crisis or economic theory	Taiwan’s historical background	Postcrisis actions of Taiwan
GDP	[1, 50]	Healthy economy [44]	Promotion of six flagship industries [5]
Int. trade Int. trade with China	Crises effect global trade [1], and WFC has global impacts [51]	[26, 35] Taiwan dependent on China [7]	Trade agreement with China [5], facilitation of national trade via iTaiwan 12 projects [48, 49]

**Table 1.** Links to criteria of analysis.

the frequency of crises is rising [3, 4]; wherefore, economies change significantly. An understanding of how countries change after crises and face the next crises allows for an improved understanding of the changing economies of the twenty-first century. As stated, the study also is of managerial relevance. This is because the country was severely affected by the crisis. Only an understanding of what happened during and as a consequence of this crisis makes it possible to know, how management can react to a crisis, when it is just starting and did not fully develop yet. This study does not focus on the development of potential managerial aspects, but does create a foundation for future research on managerial decision-making in respect to crisis reaction strategies. The key strengths are an improved and more detailed understanding of the impacts of the WFC on Taiwan and the link of the WFC to the relationship between the ROC and the PRC.

### 3.3. Research data

Within this study only secondary data published by the Taiwanese government has been used, because of its availability and high quality [52]. In the case of Taiwan, a range of researchers used data published by the ROC government previously [33, 35, 53–55]; therefore, it was perceived as a reliable source of data. Most of the analysed data comes from the Directorate General of Budget, Accounting and Statistics, Executive Yuan, ROC [56]. Yearly and/or monthly figures from January 2003 (if available) up to the figures of 2013 wherever possible have been analysed. If different data sets for the same criteria—so with more or less detail or for different time periods (month (M), quarter (Q), year)—were available, the most significant data has been selected. In addition to these national statistics, some data is also taken from other institutions including the Election Study Centre at the National Chengchi University and the World Trade Organization [57].

### 3.4. Criteria and design of analysis

A limited range of criteria have been chosen for the carried out research. Next, to the criteria selected from a FC background, the PRC-ROC relationship was a focus in the investigations. **Table 1** has been developed, showing the links between the chosen research criteria, the underlying crisis or economic theory, the cause of selection considering the Taiwanese history and the actions Taiwan has been taken to confront the crisis.

## 4. Research findings and analysis

Results of secondary research were correlated to the research questions, Taiwan's background and also economic and financial theories—where appropriate. The analysis follows the structure of **Table 1**. The findings developed out of the discussed analysis, the effects and trends are synthesised in Section 5.1.

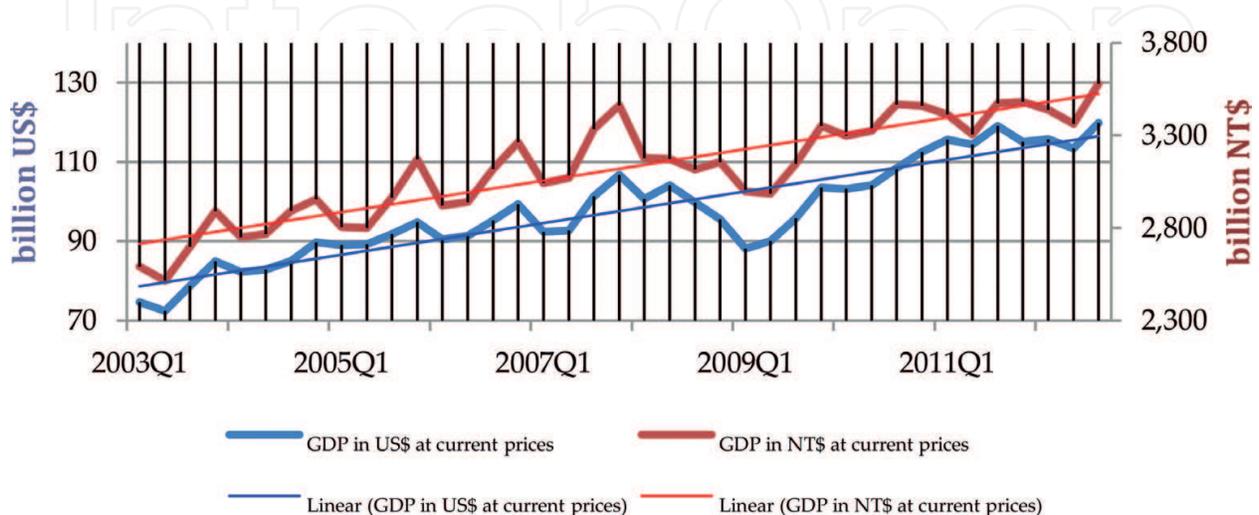
### 4.1. GDP size and industries

The GDP in **Figure 1** is visualised not only in NT\$, Taiwan's currency, but also in US dollars (US\$). This primarily allows for an improved understanding of the statistics, as most countries

are compared by their GDP in US\$ [58] and as Taiwan—as an export-driven economy [26, 35]—is very dependent on the dollar (\$) exchange rate. **Figure 1** shows that Taiwan’s GDP is growing steadily. Before the crisis hit Taiwan, the GDP was only exposed to normal fluctuations. So, until the crisis affected Taiwan, the presented graph about GDP growth is in accordance with the literature [44] stating that Taiwan’s economy has been healthy prior to the crisis. In the period between 2007Q4 and at least 2009Q2, the effects of the crisis are easily visible. In US\$ the Taiwan GDP dropped between 2007Q4 and 2009Q1 by 17.4%. In NT\$ the GDP dropped between 2007Q4 and 2009Q2 by 13.8%. This severe difference between the US\$ and the NT\$ drops stems from currency rate fluctuations. Due to the limited scope of this study and in order to not falsify internal effects of the crisis, most investigations focus on NT\$. Since about Q2 of 2009, the Taiwanese economy is recovering from the crisis and is growing continuously. Precrisis levels in US\$ and NT\$ were both reached for the first time in 2010Q3. Between 2009Q2 and 2012Q3, the GDP in NT\$ has grown remarkably by 19.8%. If only looking at the trend of growth, one may even see that the GDP size by now is only marginally deviating from the one that would have been expected without a crisis. Thus, if one only looks at the GDP, the country almost entirely recovered from the crisis.

As also stated by the Industrial Development Bureau, Ministry of Economic Affairs [34], in the literature [32, 34], Taiwan developed into a service-driven nation. **Figure 2** data analysis shows that by 2011 services grew to 72% of the overall GDP. The difference between the 68.8% in the literature [34] and the 72% that were found in research might be a deviation coming from the difference between the expected figures for 2011 and real figures for 2011. Executive Yuan was used for both studies as source of secondary data. The organisation published the expected figures at the end of the year and a few months later backed up figures after analysis of the real market. This deviation come from the difference between expected figures presented in the previous research and the real figures that were used in this more recent study. The literature indicating that Taiwan is a service economy is definitely right [32, 34].

As for the effects of the crisis, manufacturing decreased by 13.4% between 2007 and 2009 (see **Figure 2**). This is a consequence of the reduction in exports and trade with other countries



**Figure 1.** GDP at current prices quarterly [56].

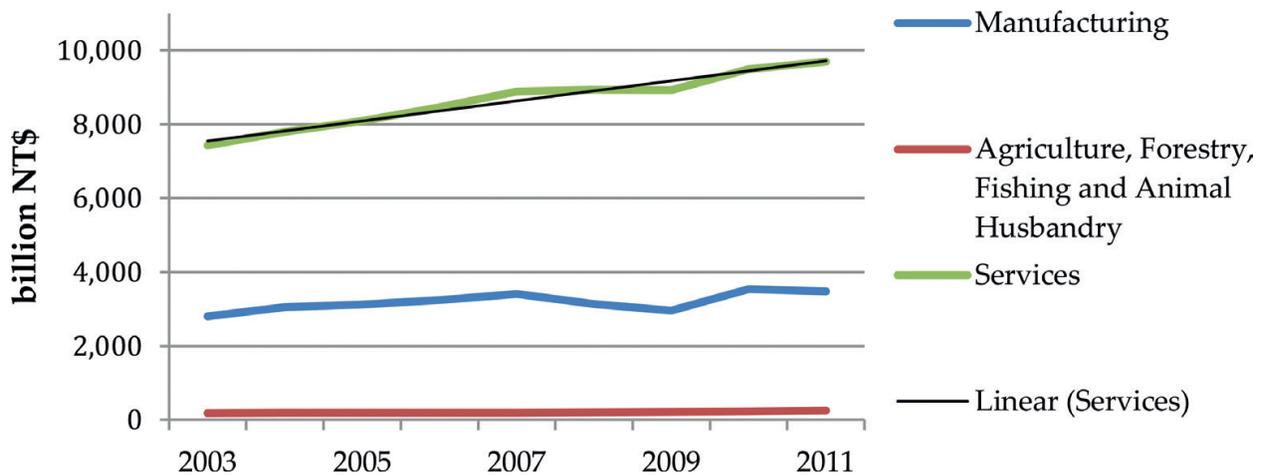


Figure 2. GDP at current prices by kind of activity [56].

which also had implications on the labour situation in the country. The downturn in manufacturing had a direct consequence on the provision of services amongst companies buying manufactured goods and also on private services that employees with reduced salaries, as a result of the crisis, could not afford anymore as a result of the crisis. The service sector, however—mainly provided nationally—has not been as heavily affected as the manufacturing sector, because services are provided mainly nationally and thus are usually not as heavily affected by changes in the international market. In 2008 and 2009, services stagnated; in 2010 and 2011, they restarted growing. Looking at the trend line, the service sector will definitely continue to grow and most likely will also increase its share of the GDP. This trend also seems likely as the Taiwanese government next to its support for exporting goods and also wants its service economy to grow [5, 34]. Nevertheless, the speed of growth has not reached precrisis levels.

The reader can hardly recognise a change in the agricultural sector in **Figure 2**. However, the agricultural sector—it was once the biggest source of income on Taiwan—grew by 30% since 2007 (**Figure 2**). This might be a consequence of the governmental support of high value-added agriculture in response to the crisis. Even though agriculture is growing, the number of people employed in agriculture is only changing insignificantly. High value-added agricultural products are traded at a higher price than plain agricultural goods; wherefore, at the same staffing level, a higher value might be produced. However, further research might be necessary to understand change of the agricultural industry on Taiwan including its changes due to subsidies for high value-added agriculture (see SubSection 2.3).

#### 4.2. International trade

As trade between nations is a very competitive field [59] and often is used to compare countries with one another [39], US\$ are investigated here. International trade has been growing steadily until the breakout of the crisis. It massively changed in the period of crisis and also has a different growth trend than before. Imports declined from 2.5 trillion US\$ in August 2008 to 0.9 trillion US\$ in January 2009 representing a reduction of imports of 65.4% within 5 months. The exports also declined heavily. Between August 2008 and January 2009, they declined by 50.9%

as international buying declined massively due to the severe lack of liquidity in the financial systems. Imports reached precrisis levels for the first time in March 2011. Exports recovered faster reaching precrisis numbers in May 2010 for the first time. The steady growth that was common before the crisis is not present anymore. This might not be directly linked to the crisis, but a consequence of a range of factors. Over time, circumstances might have changed causing a reduced growth of international trade. Nevertheless, it is not likely that international trade would be stagnating now, if there was no crisis. This, however, was not supposed to happen given the governmental actions conducted after the crisis (Section 2.3), and given, that according to the WTO international trade in total recovered since the crisis [57] (Figure 3).

#### 4.2.1. Exports

Prior to the crisis, Taiwan’s economy developed into an export-driven economy [26, 35]. This section analyses whether and how the exports of the ROC changed during the crisis days and thereafter. Particular emphasis has been put on the country/continent of destination. As literature states that the main focus of Taiwanese exports is technology-intensive goods [36, 37], the tech-intensity of traded goods was investigated. An in-depth analysis of the type of products traded including the effects of Taiwanese politics on these after the crisis would go beyond the scope of this study. Additional research on the effects of postcrisis politics on trade including a focus on the types of product traded is necessary. Further, this section aims for the identification of a trend development of how the exports of Taiwan could develop given what happened after the crisis so far including the postcrisis political actions (see SubSection 2.3).

Figure 4 visualises that prior to the crisis exports have been growing at a steady rate, mainly with Asia. The fact that they were growing and that—apart from seasonal fluctuations—they were not very volatile proves again that the economy of Taiwan was healthy before the break-out of the crisis. Taiwan in fact is trading with Europe and the USA, but its biggest trading

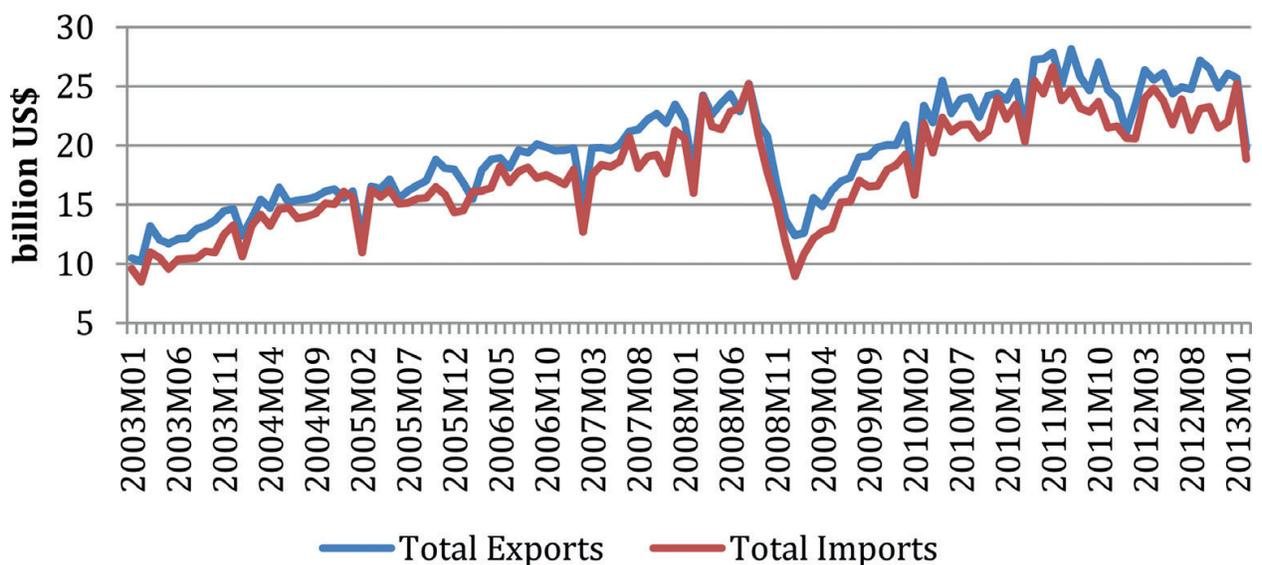


Figure 3. International trade in US\$ [56].

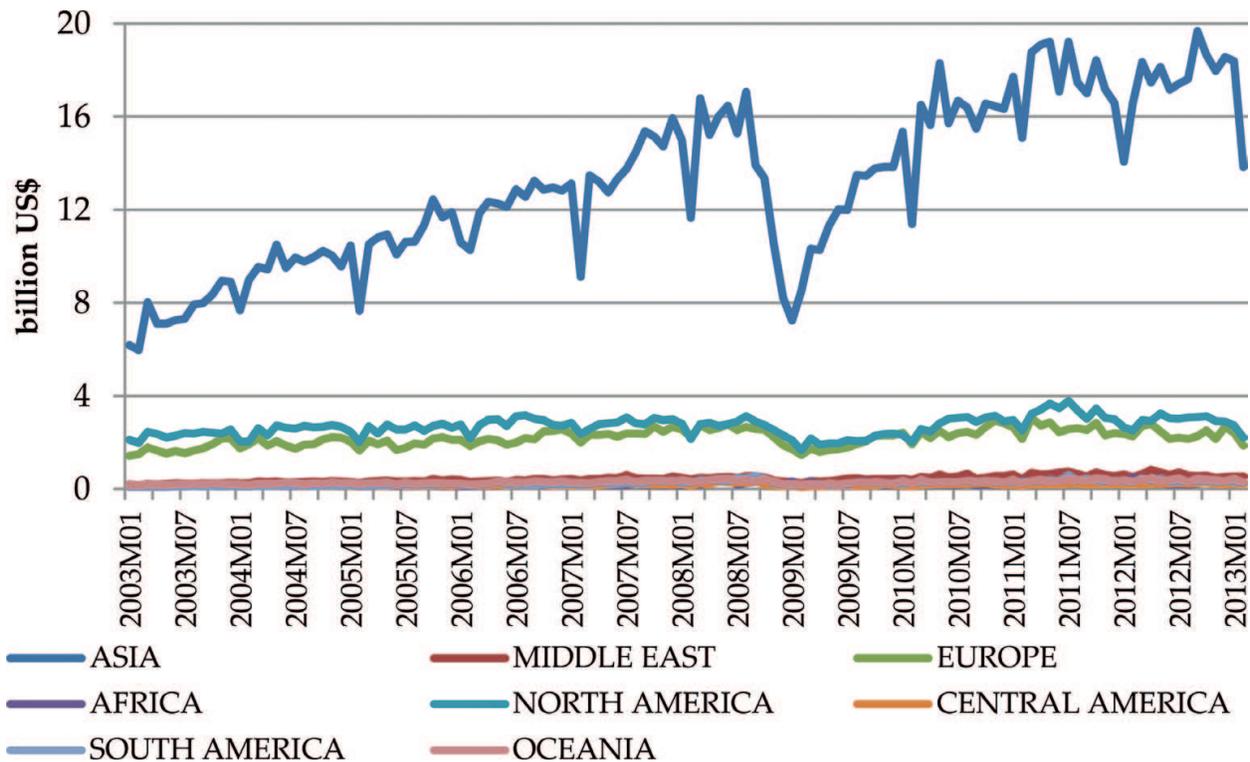


Figure 4. Exports by continent [56].

partners are located in Asia. This seems astonishing, given that the crisis happened in the USA and that literature elaborates on the effect of the US and European trade reduction [42]. Nevertheless, these references—explaining that Taiwan’s downturn was caused by its strong connection to the European and American market—are not wrong. Europe and the USA were severely hit by the effects of the crisis. These economies are trading with Asia, and as their trading declined tremendously due to the downturn, many of their trading partners were also affected. However, it was not only these two groups of economies which caused the downturn in trade, as a lot of money worldwide were lost in the rating crisis.

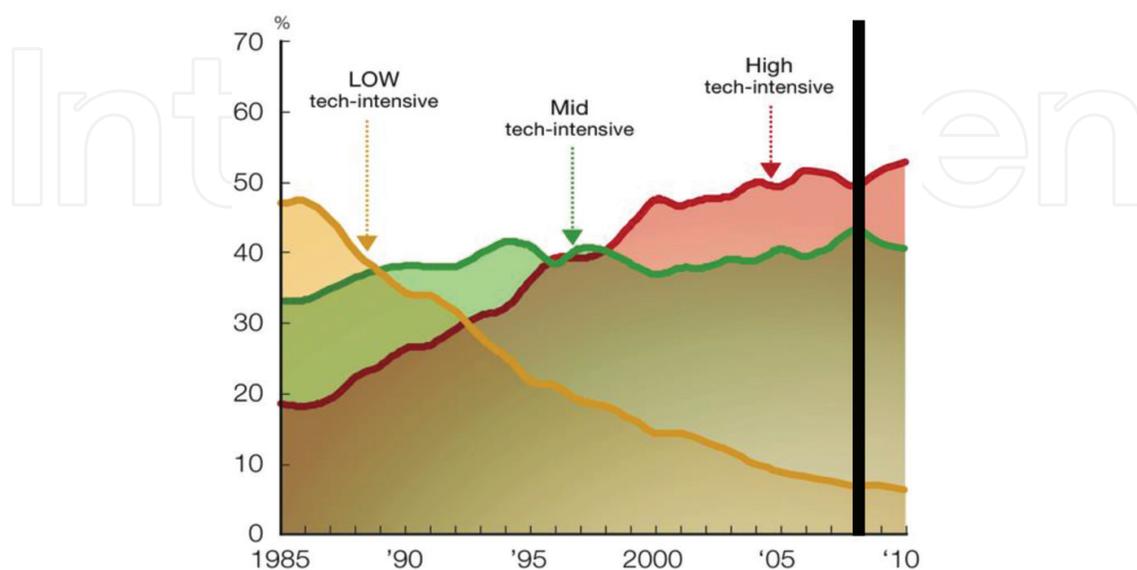
In fact Taiwan’s exports to Asia declined by 57.54% between August 2008 and January 2009 (Figure 4). This tremendous drop had effects on the country as a whole including its labour market and in the long term also the structure of its financial industry. Exports to North America and Europe also declined massively. In the very same time span (August 2008 till January 2009), exports to the USA declined by 33.3%, and to Europe they declined by 38.4%. Nevertheless—as already mentioned—they heavily impacted the trade within Asia, and their drop is only marginal to what the inner Asian trade reduction was and has caused. Europe and North America together only caused a reduction that is 21.1% of the one caused by Asia.

When further analysing the trade of Taiwan with Asian countries, it is obvious that most of Taiwan’s exports go to Mainland China and to Hong Kong. This is due to the close location on the one hand and due to China’s economic position on the other. China is a large trading point for the connection of the Asian with the European and US markets. China consequently had to suffer from the WFC as explained earlier [19], even though some literature sees China also as the winner of the crisis [21, 60]. This is, because the Chinese government

did not suffer so many problems as other markets—especially due to the comparably high savings [60]. Government-owned banks could not go bankrupt, and that is only a part of the advantage of the PRC in the crisis [21]. China’s economic meltdown had strong impacts on Taiwan as the number of exports from Taiwan to China also declined massively. Direct trade with Europe and the USA kept volatile since the crisis. Exports to the USA reached the precrisis level for the first time in November 2010, however, but are very volatile. Exports to Europe only recovered in October 2010. These are also volatile, however, but not fluctuating more than before the crisis (**Figure 5**).

It is significant to mention that exports to Asian countries are the highest and that China is the biggest Asian trading partner of Taiwan, followed by Hong Kong. After these, Japan and Singapore are to be mentioned. However, the crisis—apart from a trade drop as with most countries—did not influence the trading relationship with these nations.

As mentioned, a further aspect of investigation for exports was the tech-intensity of goods, because Taiwan—according to the literature [36]—is mainly exporting technology. In fact most of the goods traded are highly tech-intensive. The chart illustrates that the tech-intensity of traded goods has been growing for many years prior to the crisis. The number of exported low-tech-intensive goods declined from 47% in 1985 to less than 8% in 2010. High-tech-intensive goods in the same time period grew from about 19% to about 52%. The exports of mid-tech-intensive goods keep between 38 and 43% since about 1988. As for the effects of the crisis, high-tech-intensive trade declined by about 2% in 2008, whereas mid-tech-intensive goods grew by about 2.5%. The trade percentage of low-tech-intensive goods did not significantly change apart from its continuous decline even after the crisis. Since the crisis, the trade of high-tech-intensive goods is growing, and the ones of mid- and low-tech-intensive goods are declining. This happens even though the government intended a development away from high-tech trade as high tech turned out to be more crisis-sensitive.



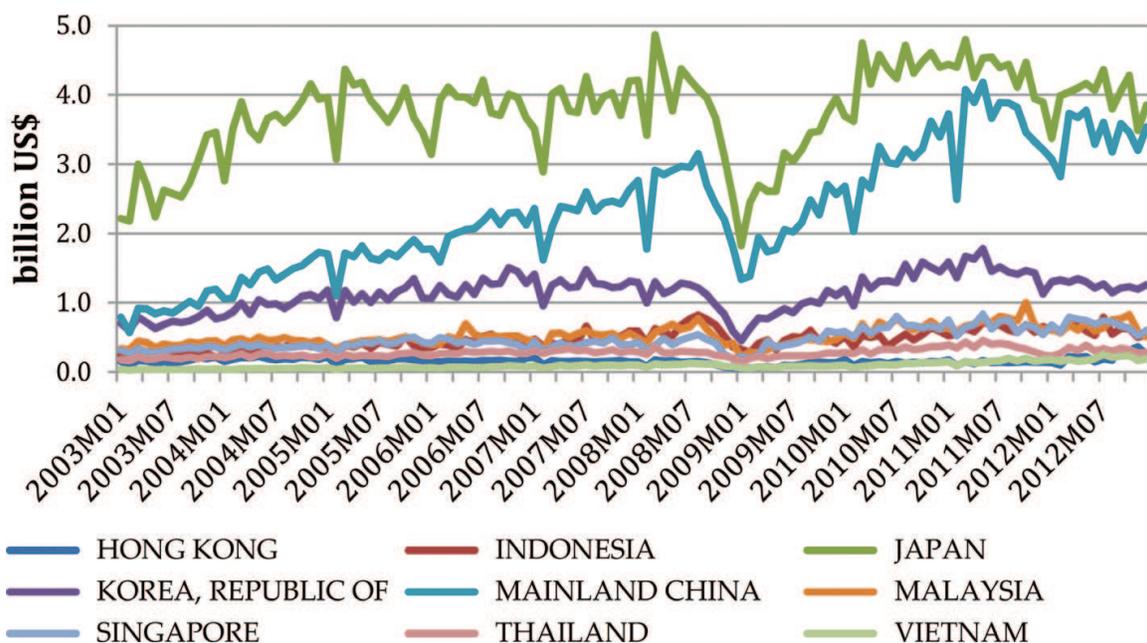
**Figure 5.** Composition of export products [61].

#### 4.2.2. Imports

Not only the exports but also the imports were heavily affected by the crisis. As the country could not export its produced goods, the imports of material declined. In hand with the reduction of exports, income also declined resulting in a reduced use of consumer goods. The changes in the labour market affected the spending patterns of the whole country and also caused a reduction of consumer goods imports. Again, most of the imports of Taiwan come from the Asian continent. However, when analysing figures per country, it becomes clear that the largest import trading partner is not Mainland China (see **Figure 6**). Taiwan's largest imports come from Japan, followed by China and Korea. As for the effects of the crisis, imports have dropped significantly. Only the ones from Asia have dropped by 59.4% between August 2008 and January 2009. The largest decline is the one from Japan which went down by more than 2 billion US\$ representing a reduction of 52% (see **Figure 6**). The figure further visualises that there was a massive drop of imports to Taiwan also from many other Asian countries.

#### 4.2.3. China (including Hong Kong) as a trading partner

As previously indicated Mainland China (including Hong Kong) is one of the biggest trading partners of Taiwan. Mainland China and Hong Kong have been merged in this part because Hong Kong at least geographically is part of China [62] and because Hong Kong is very much used as an intermediary between Taiwan and China [8]. It is vital to mention that exports to the Mainland China are much higher than the imports that are coming from the Mainland (see **Figure 7**). This means that Taiwan is much more dependent on China than China is dependent on Taiwan. And, there is another fact indicating that whereas most of the Taiwanese exports go to the PRC, the majority of its imports comes from Japan, strengthening the dependence of Taiwan on



**Figure 6.** Imports by Asian country [56].

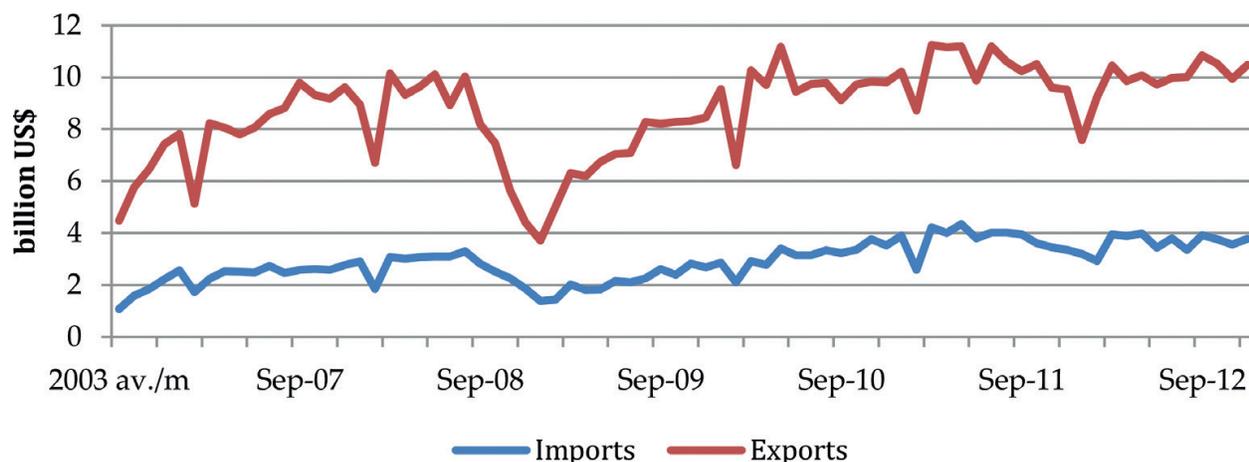


Figure 7. Trade with mainland China (PRC and Hong Kong) [56].

China. Obviously, this dependency already arises from the large size of China in comparison to Taiwan. However, if Taiwan would be importing more from China and exporting less to China, the relationship would be very different, at least for Taiwan: China would due to its size certainly not become dependent on Taiwan; however, Taiwan would not rely that much on China resulting in a more equal discussion of the two parties on a political level—the current developments are rather making this relationship more difficult, given that ROC’s dependence on the PRC is raising continuously. Finding new customers willing to buy the goods produced on Taiwan is more difficult than finding new locations to source material and pre-produced goods. This explains the dependence of Taiwan on China on an economic level. The dependence itself is not to be seen as a result of the crisis. This dependence is a result of the historic background of the two parties.

As for the effects of the crisis, exports and imports from and to Mainland China decreased significantly. Between August 2008 and January 2009, the exports from Taiwan to China dropped massively by 63%. Imports from Mainland China, however, declined massively. Between July 2008 and January 2009—so even a month more—the imports from China declined by 55.1%. The two numbers appear close; if, however, one compares the effective number, it becomes clear very fast that Taiwan is more depending on China and in this relationship more affected than China. Whereas exports to China declined by about 6.3 billion US\$, imports from China declined by only 1.9 billion US\$. By now both imports and exports are above precrisis levels. Exports were at precrisis levels by April 2010, which was 15 months after the bottom of the downturn. Imports were at the precrisis level in May 2010, which is 16 months later. Now, both values are as mentioned above the precrisis level. Imports however are growing faster than exports. This might be a result of the trade agreements between PRC and ROC as a reaction to the crisis (see Section 2.3 for further explanation). In the long term, that could mean—as happened with the exports (see Section 0)—that also for imports China becomes the largest trading partner and replaces Japan which would increase the level of dependence of Taiwan on China even more. This growing dependence, however, is not a result of the crisis—as it was existing and relevant before, but the crisis definitely accelerated its process.

## 5. Conclusion(s)

### 5.1. Consequences of the WFC for Taiwan

The range of consequences Taiwan is facing as a result of the crisis is broad, and one of the major results of this study is that it still will take the country many years to recover from this crisis—if it ever will. The major consequences of the crisis on Taiwan were:

#### 5.1.1. Massive GDP drop that fully recovered

In the period of crisis, the GDP, one of the major measures for the wealth of a nation [1], dropped massively in the period of crisis. By now, the GDP recovered entirely, and it seems to be developing now as if there was no crisis. In the period of crisis, agriculture was almost unaffected, services stagnated and manufacturing suffered a massive drop.

#### 5.1.2. International trade

The trade of Taiwan—imports and exports alike—suffered massively as a result of the crisis. Ever since, the total amounts of exports and imports are stagnating. The only trade that still keeps growing slowly but steadily is the exports to Asia—which are in fact the exports to China. Given that trade worldwide fully recovered, and is growing fast—as Taiwan's trade was prior to the crisis—Taiwan has to suffer long-term consequences of the crisis.

#### 5.1.3. Relationship with PRC

Taiwan as a result of the crisis became more dependent on China. It seems that this dependency would have evolved no matter if there was a crisis. However, the WFC speeded up the process of becoming dependent as, for example, much of the money for the iTaiwan 12 projects was money stemming from foreign investment.

All the mentioned makes the economy much more vulnerable to future crisis as it incentivises spending rather than saving. It almost seems as if the WFC consequences would have caused the country to develop to a stage that is preceding an internal crisis: low interest rates, declining savings, limited export growth, internal growth at savings expense and so on. If there will be an internal crisis on Taiwan, the ROC will become even more economically dependent on the PRC, because the country will barely be able to help its economy to recover from an additional crisis given its currently weakened state.

### 5.2. Limitations and future research recommendations

This research has been limited in terms of time and funding and in particular by access to data. This type of study is—as explained in the methodology—only possible with the use of secondary data. Secondary data by nature, however, is limited as it is not initially collected for the purpose of the research in question and often is not detailed enough [52]. So, only very limited material has been available which imposed limitations on the study. Investigations might have more meaningful results when assessing product-specific imports and exports

by the country and investigating the political dependence of Taiwan on China even more thoroughly. The use of statistical methods, not used in this study due to its limited scope, might allow for an improved understanding of the country's future. Testing the structural model that has been developed but would be useful. The four most important areas that were affected by the WFC and where further research is necessary are as follows:

#### *5.2.1. The cross-strait relationship between Taiwan (ROC) and China (PRC)*

The political actions of Taiwan regarding the trade with China were meant to create a win-win situation for both countries. However, it could also be that China is pushing Taiwan into a dependence in order to abuse this dependence on a political level. Whether and how this was influenced by PRC politics and to what extent the degree of dependence has increased due to the crisis needs more investigations, as it is clear that the level of dependence increased due to the crisis—as, however, it cannot be explained at this point, to what extent this dependence increased due to the crisis and what levels of dependence would have been reached no matter if there was a crisis.

#### *5.2.2. The postcrisis trade*

This research, due to its scope, only investigated whom Taiwan is trading with, not including what in fact has been traded. Future research has to investigate the type of products traded and also how this changed after the crisis in more detail. It could be that the currently reduced growth of exports comes from changes in the exporting industries, but this needs further research.

#### *5.2.3. The savings and spending patterns in Taiwan*

Further investigation is necessary on the savings behaviour of the Taiwanese. There is a potential that the savings rate would have remained steady or would have grown if the crisis had not happened. Only in-depth investigations about the savings behaviour and the savings perception of the people can improve this understanding. Further, it was shown that the spending pattern of people is changing. It seems that the crisis had low impacts; however, if linking the spending pattern to the savings rate, this might allow for an enhanced understanding of the issue, as how people save closely links to how people spend.

#### *5.2.4. Interest rates, consumption behaviour and employment*

As a consequence of the crisis interest rates for loans, deposits and interbank call loans as much as unemployment rates were severely affected. Areas of research that would have gone beyond the scope of this study.

Next to these four recommendations, one further aspect important to research is the implications of crisis and macroeconomic change on management decision-making within the specific cultural framework of Taiwan. As also explained in the methodology, this study lays the ground for an understanding of the economic change as such; however, due to its scope, it only gives an understanding about the change as such, not about how this knowledge should affect managerial decision-making.

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