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專業翻譯資源建置：以貨幣政策決議新聞稿為例

Creating Translation Resources for Specialized Purposes: A Case Study of Monetary Policy Releases

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專業翻譯資源建置：以貨幣政策決議新聞稿為例
Creating Translation Resources for Specialized Purposes: A Case Study of Monetary Policy Releases

本論文係戴榕儀君（學號 R03147002）在國立臺灣大學翻譯碩士學位學程完成之碩士學位論文，於民國 105 年 6 月 3 日承下列考試委員審查通過及口試及格，特此證明

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摘要

隨著電腦與資訊科技越來越發達，譯者的工作型態也有所轉變。過去譯者幾乎只能仰賴紙本參考資料和專家意見，反觀現在，翻譯資源百花齊放，更以各種不同形式存在。其中，能夠輔助譯者改善譯文精準度，產出道地語言的「語料庫」廣泛受到青睞，語料庫對翻譯及語言學習的益處也備受肯定。事實上，除了現成語料庫外，網路上也存在許多能幫助譯者根據自身需求，建置個人語料庫的免費工具。因此，筆者希望能依循各步驟，示範如何以語料庫為基礎，建置出專業財經翻譯資源，將方法提供給譯者參考。本研究結合平行語料庫與三個可比語料庫，前者的資源來自臺灣央行每季發布的中文貨幣政策決議新聞稿及其英譯，而後者則分別包含美國、英國及歐盟中央銀行系統以英文寫成的貨幣政策決議聲明。四組語料以一系列語料庫分析工具進一步處理，使用工具包含 *AntConc*、*kfNgram*、*BFSU Collocator*、*LF Aligner*、*Notepad++*和 *CUC_ParaConc*，而分析整理後所得到的結果以「全面性專業翻譯資源」的形式呈現，此資源包含經段對應及句對應的中英雙語語料，也涵蓋政府財經文稿中常出現的詞串、搭配詞和專門術語，且可以再搭配上述之多種語料處理工具一起使用，讓譯者能從單詞觀察到語篇，由不同層次檢視語言特徵，進而提升翻譯效率及產出品質；同時，筆者也盼望本研究能實際啟發譯者依據個人需求，建置有益其工作的翻譯資源。

關鍵詞：平行及可比語料庫，語料庫分析工具，財經翻譯，語料庫輔助翻譯，自建翻譯資源

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Abstract

Contemporary developments in science and technology have transformed translators' working styles. Translation resources today are no longer limited to printed reference materials or subject field experts but available in a wide array of forms. Among numerous resources, corpora have become one of the top choices for translators who wish to produce high-quality and idiomatic texts, with the benefits of corpus use widely acknowledged. In fact, apart from ready-made corpora, there also exist a number of free tools that translators can employ to establish ad hoc corpora according to their needs. This study, therefore, aims to provide translators with a method of resource compilation through a step-by-step demonstration using a corpus-based approach. The research combines a parallel corpus, which contains the Chinese monetary policy releases issued by the central bank of Taiwan as well as correspondent English translations, and three comparable corpora, which consist respectively of the English-written monetary policy releases by the U.S. Federal Reserve System, the Bank of England, and the European Central Bank. These language materials are processed with a series of corpus analysis programs, including *AntConc*, *kfNgram*, *BFSU Collocator*, *LF Aligner*, *Notepad++*, and *CUC_ParaConc*. Results obtained through the analysis of the four corpora are presented as a comprehensive translation resource which encompasses paragraph and sentence-aligned bilingual texts as well as lexical bundles, collocations, and specialized terms occurring with a high frequency in financial and economic texts that belong to the text type of government publications. It is hoped that such a resource can not only facilitate the translation process by allowing translators to observe language features from the context to the vocabulary level but actually inspire them to build and use corpora to their advantage as well.

Keywords: parallel and comparable corpora, corpus analysis tools, financial and economic translation, corpus-aided translation, self-constructed translation resource

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Chapter 1. Introduction

Contemporary developments in computer science and technological information have transformed translators' working styles. Translation resources today are no longer limited to physical books and dictionaries, experts' opinions, or ungrounded intuitions but available in a vast array of forms. Translators who live in this era of information explosion, unlike their predecessors, can resort to various electronic sources to facilitate their translation work. Among the numerous reference materials which can assist the translation process, corpora has become one of the top choices for translators who would like to produce high-quality, idiomatic texts in either the target or the source language.

The advantages translators can obtain from the use of corpora have been acknowledged in a number of research publications (e.g., Bernardini, Stewart, & Zanettin, 2003; McEnery, Tono, & Xiao 2006; Flowerdew, 2011; Delpech, 2014), but corpus use is by no means a topic exclusively discussed in the academia. An article titled "Learning Authentic English Using Corpora[1]" was published in 2014 on VoiceTube, an English-learning website operated by a Taiwanese company, with several free corpora being introduced for readers to exploit for the purpose of language learning, such as Netspeak[2], Just The Word[3], and TANGO Verb-Noun Collocation[4] (Chuan, 2014). The Japanese author, Eiji Fujita (2011), also encourages the public through his book, *Learning English with Google*[5], to make use of Google as an enormous online corpus to learn about idiomatic English expressions. In fact, in

[1] "用「語料庫」學道地英文."
[2] http://www.netspeak.org/.
[3] http://www.just-the-word.com/.
[4] http://candle.cs.nthu.edu.tw/collocation/webform2.aspx?funcID=9.
[5] The original Japanese book title is **Google 英語勉強法 オンデマンド**.

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addition to the corpora which have already been constructed, there also exist various free tools that can help translators establish ad hoc translation resources via corpus-based methods according to their specific needs. This thesis is therefore conceived to demonstrate an actual corpus-based compilation of a financial and economic translation resource. Not only is the end result hoped to be of pragmatic value to translators, the steps and tools involved in the compilation process are also expected to educate translators on how to construct a corpus and extract useful information therefrom.

1.1 Motives

One of the biggest news stories in December, 2015 was the rate increase announced by the Federal Open Market Committee (FOMC) of the United States. Before the FOMC members approved the decision of moving the target range of the federal funds rate up by 25 basis points to 0.25%-0.5% at their meeting on December 16th (North America Eastern Standard Time), there had been a lot of speculation about whether the committee would raise the interest rate for the first time in nine years, thereby ending the seven-year-long era of accommodative policy adopted in response to the financial crisis in 2008 (Oyedele, 2015). The remarks of Janet Yellen, Chair of the Board of Governors of the Federal Reserve System (FRB), were scrutinized by market observers in search of possibilities of a rate increase[6]. After the decision was released, there was another bombardment of news articles written to report the historical moment and analyze the effects the rate change could possibly produce. If we search for the keywords, "FOMC," "rate," and "increase," on Google without placing them together in double quotation marks, the search engine comes up with 3,280 results which were

[6] E.g., "Yellen Signals Fed on Track to Raise Rates in December" by the Wall Street Journal (http://www.wsj.com/articles/feds-yellen-expresses-confidence-in-u-s-economy-ahead-of-december-meeting-1449077125); "Yellen signals readiness for Fed rate increase" by the Reuters (http://www.reuters.com/article/us-usa-economy-instant-idUSKBN0TL26220151202); "Yellen says US economy can handle rate increase" by the BBC (http://www.bbc.com/news/business-34999941).

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published within merely five days from December 14th to December 18th. Over the same short period, there were even more relevant articles written in Chinese, with the Google search of the two key terms, "聯準會" and "升息" without quotation marks returning 5,430 results. Evidently, the FOMC's decision had not only stood under the limelight of English-speaking communities but drawn considerable international attention as well.

Immediately after the FOMC's decision statement was released, the Central Bank of China (Taiwan), which is commonly abbreviated as the CBC, held an earlier-than-scheduled board meeting on December 17th in response to the U.S. rate change but surprisingly announced an opposite decision of a 12.5-basis-point rate cut, which triggered yet another wave of discussion in Taiwan.

Regardless of the rationale behind the convergent decisions by the FOMC and the CBC, however, the post-meeting monetary policy statements released by the two banks proved to be focal points of attention due to the key role a central bank plays in the economic conditions of a country. The announcements of decisions and relevant reports had inspired the author of this thesis to conduct a research into the CBC's monetary policy releases as well as the English translations of them. In addition, when it comes to financial and economic texts, it has often been news articles and commentaries that are examined in translation studies[7], presumably due to the easy accessibility and the abundant sources of such materials. A monetary policy release, though containing specialized financial and economic knowledge as well, belongs to the text type of government publications. The writing register is higher, word choices tend to be more formal, and the status as an important attention-drawing government document leads to the assumption that monetary policy statements are guaranteed

[7] E.g., Chang, 2011; Lin, 2011; Liu, 2014; Panou, 2014; Chen, 2015.

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decent translation quality. These characteristics, which distinguish policy reports from other texts of similar topics, also motivated the author to undertake a further research and create a resource out of the English translations of the CBC's monetary releases.

Another motive involves the author's working experience at a localization company, where computer-aided translation (CAT) tools were witnessed to have transformed translators' working procedures and styles in a drastic manner. Setting aside the column-by-column user interfaces which force translators to work on texts chunk by chunk and are therefore received with mixed reviews, the translation memories (TM) stored in such CAT programs as *SDL Trados*, *SDL Passolo*, *Idiom WorldServer*, etc. are indeed helpful when specialized terms and repetitive word strings are to be looked up. However, commercial CAT tools are often too expensive for individual translators to afford and only contain segments of varying lengths which have previously been translated. Hence, the author would like to create a resource which encompasses not only bilingual texts but reference usages collected from the monetary releases issued by foreign central banks as well. The methodology employed in this research is also intended to show translators how to build up a personal resource using a series of free tools available online according to their translation fields.

1.2 Methods and Purposes

This thesis combines a parallel corpus and three comparable corpora. The parallel corpus consists of the CBC's Chinese monetary policy releases and correspondent English translations, while materials of the three comparable corpora are collected respectively from the English monetary policy reports issued by the FOMC, the Bank of England (BoE), and the European Central Bank (ECB). All these texts are processed and analyzed with a number of free corpus analysis tools before finally being sorted into a translation resource which can serve as a source of reference for translators

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working on similar texts.

In addition to the weakness of commercial TM programs that they contain no reference materials from exterior sources, bilingual segments are not further processed or classified into smaller categories. Thus, an extra burden is placed on translators who wish to acquire a deeper understanding of inter-word relations through units like collocations and lexical bundles because they must search for and observe such relations in unprocessed texts stored in memories. As a response to these shortcomings, the author intends to accomplish two goals in this research:

(1) To produce a comprehensive translation resource which encompasses paragraph and sentence-aligned bilingual texts, lexical bundles, collocations, as well as specialized terms, thus facilitating the translation process by allowing translators to observe language features from the vocabulary to the context level.

(2) To provide an inexpensive and accessible approach for individual translators to create their own resources, thereby drawing attention to the advantages of corpora use as well as the importance of the ability to make smart use of computer tools to suit their needs in translation work.

1.3 Thesis Structure

This thesis contains five chapters, Introduction, Literature Review, Methodology, Results & Discussions, as well as Conclusions. The following chapter covers the past literature which is found to have a direct bearing to the present research, and the chapter of methodology presents a detailed demonstration of how to compile a translation resource using a number of text analysis tools, with figures and tables provided along with textual descriptions for a clearer illustration. The results, which are expected to cover the bilingual texts which have been aligned on the paragraph and the sentence levels, lexical bundles, collocations, as well as specialized terms, are presented in the

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fourth chapter together with analyses. In the final chapter, the author evaluates the results based on the two objectives which have been set forth in Section 1.2, and the limitations encountered in this research as well as suggestions for relevant future studies are reviewed and discussed.

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Chapter 2. Literature Review

This chapter is dedicated to present the existing literature which is found to have a direct bearing to the topics that are covered in the present research.

2.1 Introduction to Corpora

A corpus, according to Flowerdew (2011), is seen by several principal researchers (e.g., Sinclair, 1991; Biber et al., 1998) in corpus linguistics as "a collection of authentic language, either written or spoken, which have been compiled for a particular purpose" (p. 3). Notable examples of large-scale English corpora for general purposes include the Brown Corpus, which contains approximately one million words collected from American English materials during 1964 and 1979 (Francis & kučera, 1964-1979), the 100-million-word British National Corpus (BNC), which represents a selection of British English (Burnard, 2009), as well as the Corpus of Contemporary American English (COCA), which consists of 520 million words collected from a variety of sources, such as spoken English, magazine articles, and academic publications (Davies, 2008). As for corpora for specialized purposes, two notable examples are the Cambridge and Nottingham Corpus of Discourse in English (CANCODE), which is composed of five million words collected from spoken interactions (Adolphs & Carter, 2003), and the 1.8-million-word Michigan Corpus of Academic Spoken English (MICASE) established by the University of Michigan (Römer, 2010).

While all the corpora mentioned above are monolingual, there exist bilingual and multilingual corpora that consist of two or more languages, such as Wordpedia[8], which includes the Chinese-English contents published in the *Taiwan Panorama Magazine* from 1976 to 2010 (Taiwan Panorama Magazine, 2010). Apart from the number of languages they encompass, corpora can also be categorized according to their text

[8] 光華雜誌中英對照知識庫, http://db2.niu.edu.tw/sinorama/intro.htm.

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compositions. This other taxonomical line is drawn between parallel and comparable corpora. The former is made up of a selection of texts and their translations into one or more languages, while the latter covers texts which are similar in aspects like subject matter, text type, degree of technicality, and so on (Bowker & Pearson, 2002). For example, Microsoft has exploited the internet as its corpus and developed the Bing Dictionary[9], which presents Chinese-English parallel materials as in Figure 2.1 below. As for comparable corpora, the Lancaster-Oslo/Bergen Corpus (LOB) of British English and the Kolhapur Corpus of Indian English have both been built so as to mirror the Brown Corpus, with their sizes and compositions similar to the model corpus of American English (Lüdeling, 2008).

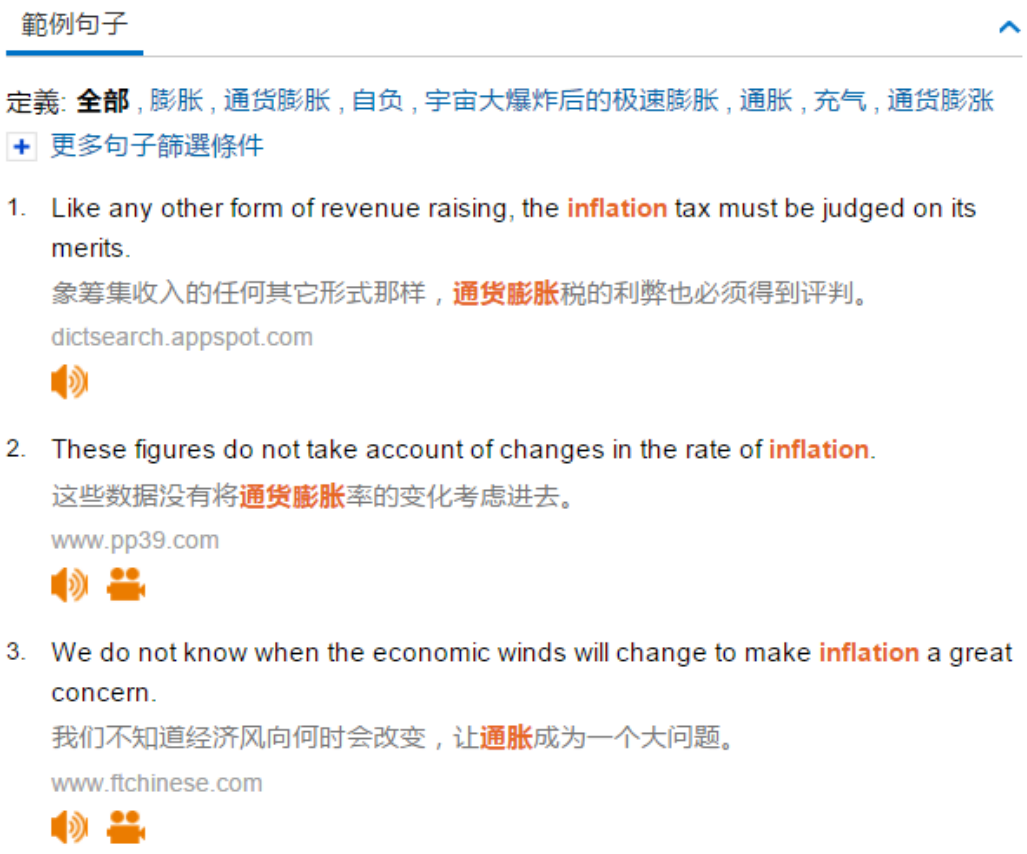

Figure 2.1. The user interface of the Bing Dictionary, retrieved from http://www.bing.com/?FORM=Z9FD1&mkt=zh-CN.

[9] http://cn.bing.com/dict/?mkt=zh-CN.

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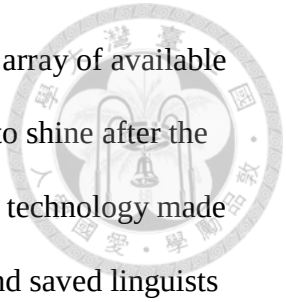

2.1.1 Corpora over traditional dictionaries. Despite the vast array of available corpora listed in the preceding section, corpus did not have a chance to shine after the 1980s, when the developments in computer software and information technology made it quicker and easier to collect large amounts of language materials and saved linguists and literary scholars from the painstaking work of collecting attested data (McCarthy & O'Keeffe, 2010). In their introduction into the history of modern corpus linguistics, the two authors suggest that before relevant technologies took off, lexicographers' work was one of the driving forces behind the evolution of this discipline.

Yet traditional lexicographic compilations, i.e. dictionaries, have gradually started to appear insufficient in meeting the needs of language users in that conventional dictionary entries are largely standardized and limited. Halliday (2004), for instance, concludes that most dictionaries follow a general structure of (1) a word's headword or lemma, (2) its pronunciation, (3) its word class, (4) its etymology, (5) its definition, and (6) citations (examples of its use), not to mention that example sentences are often lexicographers' creations instead of authentic materials. Teubert (2004) also illustrates the shortcoming of traditional compiling approaches by examining the collocates of the adjective, *false*, saying that "without the application of the methodology developed for corpus linguistics, it seems to be left to the whims of dictionary makers what they decide to include" (p. 88). Another problem about old-fashioned dictionaries lies in the order in which meanings of a word are listed. Yallop (2007) contends that even though the verb *have* is used as an auxiliary verb and in combinations like *have to*, "[d]efinitions of the word *have* often begins with the sense of 'possess' or 'own', and many people indeed think of this as the fundamental or ordinary meaning of the word," and such particular sequences might lead dictionary users to distinct between a word's "core" and "peripheral" meanings (p. 29).

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In short, conventional dictionaries are unsatisfactory in its own right, let alone when used in the translation scenario, where texts are seldom translated word by word. Besides, translators are in constant need of the information regarding which of a word's alternative explanation to opt for in a particular case. In this regard, corpora are a lot more helpful. The following section is devoted to the discussion of how corpora outperform regularized dictionaries and how corpora of different types can be constructed for varying purposes in the field of translation.

2.1.2 Corpora and translation. Mona Baker, who is hailed by Flowerdew (2011) as a "pioneer in introducing corpus linguistic methodologies to translation studies," is one of the first researchers to integrate corpora into the realm of translation (p. 162). Baker's (1993) comparable corpus, which contains a set of A-language texts and a set of A-language translations of similar content, leads her research to the conclusion that translated texts share a number of universal features such as explicitation, disambiguation, and simplification. Later in the past decade, more and more corpora have been created to facilitate translation and serve the purpose of translation studies along with advances in computer hardware and software. For example, Taiwan's web-based bilingual concordance system, TotalRecall[10], was established using the Chinese-English texts collected from the *Taiwan Panorama Magazine*. Researchers behind the project hope that this parallel corpus would "encourage authentic and idiomatic use in second language writing" (Chang, Chung, Shei, Wu, & Yeh, 2003, p. 201). Users can see the searched words in context and refer to the source of any entry when in need of further information on overall concepts or structures. Such a design (see Figure 2.2)

[10] http://candle.cs.nthu.edu.tw/totalrecall/totalrecall/totalrecall.aspx.

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helps translators produce idiomatic expressions according to contexts.

Figure 2.2. The user interface of TotalRecall, retrieved from http://candle.cs.nthu.edu.tw/totalrecall/totalrecall/totalrecall.aspx.

In addition to bilingual parallel corpora compiled for general purposes, there have also been researchers who established corpora for specialized fields, such as Vila and Trigo's French-Spanish corpus of medical terms (2012) as well as Tagnin and Teixeira's translator-oriented English-Portuguese corpus for cooking terms (2012).

Apart from parallel corpora, comparable corpora are widely known to be a helpful resource for language users as well. For example, Zanettin (1998) describes the learning process triggered by comparable corpora in the translation classroom as follows:

"In the process of establishing equivalencies between comparable sets of texts,

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learners acquire information about the way in which discourse is laid down in the two languages. They can use the attested evidence which corpora provide and create new texts which are partly made of citations from the target language adapted to the new occasion" (p. 3).

Wei and Xiao (2014) also acknowledge the contribution of comparable corpora in "improving the translator's subject field understanding and improving the quality of translation in terms of fluency, correct term choice and idiomatic expressions in the chosen field" (p. 2). For instance, the GENTT corpus[11], which is the research result of the GENTT (Textual Genres for Translation, GÉNeros Textuales para la Traducción in Spanish) group's project, contains samples of comparable genres in different languages, such as Catalan, English, and Spanish (Izquierdo & Albi, 2008). According to the researchers, the GENTT project was exactly initiated to compile a multilingual corpus of "specialized discourse texts that could prove useful to translators and writers of professional texts, providing them with text models and patterns to be used as textual, conceptual, linguistic and terminological reference" (p. 1).

Varantola (2000) once contended that 50% of the time spent on a translation work can be devoted to the consultation of reference materials. The percentage differs from person to person and depends on a lot of variables, of course, but what can be confirmed is that with a proper corpus which is pertinent to a translator's working language(s) or text topic, preferably both, translation quality and efficiency would surely be enhanced.

2.2 Monetary Policy Release

A central bank's monetary policy, as an instrument of macroeconomic management, offers a channel for the government to maintain the financial and economic stability of its country. It is stressed on the official website of the U.S.

[11] http://www.corpus-gentt.uji.es/.

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Federal Reserve (also known as the Federal Reserve System or simply the Fed), which is generally considered one of the most influential central banking systems, that its policymaking body, FOMC, is "firmly committed to fulfilling th[e] statutory mandate" of "maximum employment, stable prices, and moderate long-term interest rates" (Board of Governors of the Federal Reserve System, n.d., para. 2). According to Gertler and Bernanke (1995), the former chairman of the Fed, changes in the federal funds rate, which is the rate most closely controlled by the FOMC, can cause a great impact on the course of the real economy. They also cite other economic researches[12] in the same article, thereby confirming that "monetary policy actions are followed by movements in real output that may last for two years or more" (p. 27).

In light of the important role played by central banking systems as well as the significant economic influences wielded through monetary policy, official monetary releases and correspondent translations are particularly important and worth studying in that any single detail in the meticulously-composed texts can affect market trends, investor confidence, as well as overall financial and economic conditions. The following sections present an introduction of the central banks of Taiwan, the U.S., England, and the European Union, a discussion of the textual characteristics of government monetary policy releases, as well as a review of existing resources that can assist the Chinese-English translation of such texts.

2.2.1 CBC. Board meetings (理監事會) of the CBC are stipulated by the *Regulations Governing Meetings of the Board of Directors of the Central Bank of China*[13] (1981) to be held once every three month for board members to develop monetary policy as a reaction to current financial conditions in Taiwan, with

[12] E.g., Romer & Romer, 1989; Bernanke & Bliner, 1992.
[13] 中央銀行監事會會議規則.

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extraordinary meetings allowed to be called when necessary. Parts of the CBC's objectives, according to its official website, are to promote financial stability and to guide sound banking operations (Central Bank of the Republic of China, n.d.). In order to achieve such objectives, directors on the board meet regularly to determine the discount rate, the rate on accommodations with collateral, and the rate on accommodations without collateral based on a number of key indicators of the financial and economic environments both at home and abroad. The policy decisions of the board are released in Chinese with English translations after each quarterly meeting and are available on the official CBC. One point to be noted is that attachments containing more detailed explanations for monetary decisions and meeting minutes are generally available in Chinese only, with few exceptions. Hence, the bilingual materials collected from the CBC web page are not 100% parallel and require further human processing, which is to be described in the third chapter.

2.2.2 FOMC. The FOMC is the policymaking body of the Federal Reserve. Members of the FOMC closely monitor the federal funds rate, which is "the interest rate at which depository institutions lend reserve balances to other depository institutions overnight" (Board of Governors of the Federal Reserve System, n.d., para. 1). The importance of this interest rate is highlighted by Bernanke and Blinder (1992) by affirming that the federal funds rate is "extremely informative about future movement of real macroeconomic variables" (p. 901). Coupled with the high status of the U.S. in the international financial and economic community, the FOMC's decisions have always been put in the limelight. The committee holds eight regular meetings during the year as well as extraordinary meetings if needed, and a statement is released after each meeting along with meeting minutes.

2.2.3 BoE. The Monetary Policy Committee (MPC) of the Bank of England

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(BoE) is the British counterpart of the CBC's Board of Directors and the Fed's FOMC. Members of the MPC meet every month to set the Bank Rate, which is the rate at which the BoE charges banks for secured overnight lending, and the scope of the bank's asset purchase facility, which was designed as a mechanism of quantitative easing in response to the 2008 financial crisis (Bank of England, n.d.). After monthly MPC meetings, monetary decisions are published alongside minutes, which provide full accounts of policy discussions.

2.2.4 ECB. The ECB's monetary policy is determined by its Governing Council on meetings held every six weeks. The council uses three key rates to manage the macroeconomic conditions of the Eurozone, including the deposit facility rate, which defines the interest banks receive for depositing overnight with the ECB, the rate on main refinancing operations (MROs), which defines the cost at which banks can borrow from the ECB for a week, and the rate on the marginal lending facility, a higher rate at which banks can take out overnight loans from the ECB. Similar to its British counterpart, the council also determines the size of its asset purchase program. Shortly after monetary decisions are released, press conferences are held for the president or the vice president of the ECB to explain the rationale behind the resolutions by giving introductory statements (European Central Bank, n.d.). Brief accounts of policy decisions as well as the transcripts of introductory statements are both published on the official website of the ECB, with the version of at least one language, i.e. English, available and the irregular appearance of multilingual versions of as many as 22 other languages, including Spanish, French, German, Polish, Dutch, etc.

2.2.5 Textual characteristics of monetary policy releases. Despite the specialized content, monetary policy reports are different from economic and financial

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news articles and commentaries, in that these official releases belong to the text type[14] of government publications. Though policy reports can, in a way, be classified as a type of press release[15], they tend to be formal in tone and high in register. In fact, the governments of a number of countries have published style guides to be followed by any person or agency that is composing government documents. For example, the *Plain Writing Act of 2010* stipulates the use of "clear government communication that the public can understand and use" (PLAIN, n.d., para. 1). The Plain Language Action and Information Network (PLAIN), which consists of U.S. federal employees, is dedicated to "the idea that citizens deserve clear communications from the government" (2011, p. i). Style guidelines established by the PLAIN include "use the same term consistently for a specific thought or object," "avoid double negatives and exceptions to exceptions," "place words carefully," and "have a topic sentence," among many others (2011, pp. 45, 54, 60 & 63). Similarly, the Australian (2002), the British (n.d.), and the New Zealand (n.d.) governments also provide their respective style guidelines, all of which emphasize the audience's needs and the use of clear language. The Research, Development and Evaluation Commission of Taiwan's Executive Yuan (行政院研究發展考核委員會) offers "Recommended Guidelines for the Use of Formats in Government Documents[16]" (政府文書格式參考規範) as well. In addition to pure format issues like margins, fonts, and sizes, it is also suggested by the commission that

[14] There have been controversies over the use of "text type" and "genre." For example, Biber (1988) and the EAGLES authors (1996) contend that a genre is to be determined according to the intended audience, the purpose, as well as other external and non-linguistic factors, while a text type is to be distinguished based on internal, linguistic features of a text. Yet as Lee (2001) argues after comparing theories formulated by different linguists, the term, "text type," is still "an elusive concept which cannot yet be established explicitly in terms of linguistic features" (p. 41). Therefore, the two terms are used interchangeably as the exact definitions of them do not concern the topic of this research.

[15] The monetary policy decisions by the Board of Directors, the FOMC, and the Governing Council are labeled "Press Release" on the official websites of the CBC, the Federal Reserve, and the ECB respectively, while those by the MPC are published under the "Publications" section on the BoE web page.

[16] The title is translated by the author as the guidelines manual is only available in Chinese.

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consistency and clarity should be maintained and valued in the composition of government publications (Research, Development and Evaluation Commission of the Executive Yuan, 1997). It can therefore be seen that government-issued texts are indeed written following certain rules, so are the translations of such texts. In this regard, the table below offers an illustration of how the translations of monetary policy releases epitomize some of the characteristics of government publications.

Table 2.1

A Comparison of CBC's Two Monetary Policy Releases from 2001

Release Time	Sep. 26th, 2001	Dec. 27th, 2001
Number of Paragraphs	Five	Five
The First Paragraph	In line with the deliberations made at the Board meeting on September 26, the future directions for monetary policy of the Central Bank of China (CBC) *shall* be the following:	In line with the deliberations made at the Board meeting on December 27, the future directions for monetary policy of the Central Bank of China (CBC) *shall* be the following:
Topics Discussed in the Following Paragraphs	Foreign Exchange Market ➔ Rate Changes ➔ Market Liquidity ➔ Conclusion	Foreign Exchange Market ➔ M2 Target ➔ Rate Changes ➔ Market Liquidity

Table 2.1 shows the formal similarities, the recurrent sentence patterns and topics, as well as the high-register word choice (the use of the legal auxiliary verb, "shall," for example) in the CBC releases, and similar features can be observed in the reports of the FOMC, the MPC, and the Governing Council. In short, monetary policy releases are a mixture of a formal writing style and specialized content.

Such a unique source of texts has rarely been touched upon. Among past

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researches on financial and economic texts, news articles and editorials are one of the most studied text types. For example, Alanyali, Moat, and Preis (2013) compare the number of mentions of a company in the English-language daily newspaper, the *Financial Times*, and the stock transaction volume of that company over a specific period of time to conclude that news reports do reflect movements in financial markets; K. Ahmad and seven fellow researchers (2006) also exploit news reports and editorials, using a corpus-based approach to extract sentiment indicators to compare with the movements of shares, currencies, as well as other financial figures and prove that there exist positive correlations between the two sets of data. Lin (2011) compares English commentaries published on the financial commentary website, *Project Syndicate*, and correspondent Chinese translations to explore the translation patterns and strategies; Chang (2011) bases her research on Baker's theory of translation universals and compares the degrees of explicitation observed respectively in online and printed financial news articles translated from English into Chinese; Chen (2015) employs the conceptual metaphor theory and focuses on the Chinese translations of English metaphors in financial commentaries collected from *Project Syndicate*. There are also theses written to address the translation issues of other types of finance and economy-related texts, such as the study of Chinese-English annuity insurance translation by Pan (2012) and the analysis of Chinese-English business letter translation by Wu (2010). Cheng and Ho's (2015) corpus study of financial analyst reports is similar to this research in terms of methodology and language materials, but with a monolingual corpus consisting merely of English reports, their main purpose is to analyze and compare the semantic fields and metaphors present in the two collections of texts acquired from two different companies. Liu's (2014) and Chen's (2015) studies are based on corpora as well, but both researchers focus on the correlations between

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economic movements and financial texts. Liu compares the world GDP trend from 2007 to 2009 and the frequency of terms like "financial crisis" and "economic crisis" appearing in the *Financial Times* over the same period and found a negative correlation, while Chen collects 1,000 research articles from 2003 to 2012 and analyzes the correlation between the U.S. GDP growth rate and the frequency of the keyword, "risk," appearing in the articles before and after 2008, the year when the U.S. subprime mortgage caused the global financial tsunami.

For the sake of clarity, it should be noted that the term, "specialized," does not refer to the same field of translation as "technical" does in this study. Casagrande (1954) divides translators' aims into four categories, including "pragmatic," "aesthetic-poetic," "linguistic," and "ethnographic" (p. 355). Under this classification, technical translation seems to overlap somehow with pragmatic translation, which the researcher defines as practical, matter-of-fact translation of texts like scientific treatises, instructions, and explanations. Later in 1993, Wright and Wright defines technical translation as the translation of "texts written using Language for Special Purposes," which can include texts from fields such as medicine, law, and engineering (p. 1). As time proceeded, nevertheless, Byrne (2006) proposes a significantly different definition of technical translation, contending that "'technical' means precisely that, something to do with technology and technological texts. Just because there is a specialized terminology, doesn't make something technical. In discussing technical translation it is useful to make the distinction between specialized and technical translation" (p. 3). Religion, as he further explains, has a specific terminology and fixed writing conventions but has never been deemed technical. Although there are indeed researchers[17] who prefer to phrase the translation of specialized texts as "technical

[17] For example, Tagnin and Teixeira (2012) phrase their English-Portuguese collection of cooking terms

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translation," only the term, "specialized," is employed to describe both the content and the translation of monetary policy releases for the purpose of this research.

2.2.6 Existing translation resources. As explicated in the previous section, monetary policy releases belong to the text type of government publications and contain specialized knowledge concerning finance and economics. Such characteristics might pose challenges to translators who are not familiar with high-register writing styles or who do not have a professional background in financial or economic disciplines. While translators can refer to official style guides, as mentioned before, to adjust their writing to government standards, extra help may be needed when it comes to specialized financial and economic terms and concepts. There are several resources that can assist translators in this aspect. For monolingual resources, one could refer to the corpus of English for Business and Management Purposes (EBMP), which has been compiled by Chang Jung Christian University (CJCU, 長榮大學) with an aim to improve students' command of specialized English in the two fields (CJCU, n.d.); one could also refer to the Hong Kong Financial Services Corpus (HKFSC), which consists of approximately 7.3 million English words collected by the Hong Kong Polytechnic University from texts produced by the financial services sector in Hong Kong (Research Center for Professional Communication in English, Hong Kong Polytechnic University, n.d.). In both the English corpora, users can see the keywords or key phrases they search for in context.

As for bilingual corpora, there is hardly any Chinese-English specialized corpus with an interface designed to aid authoring or translating. The CBC offers a bilingual glossary on its website, with some of the entries coming with Chinese and English explanations, as shown in Figure 2.3 below. However, even though the explanations

as a "technical glossary."

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for specialized terms do help deepen translators' understanding of financial and economic concepts, the fact that none of the terms appear in a keyword in context (KWIC) format deprives users of possible learnings which could be obtained through the observation of authentic texts. As a result, this bilingual glossary is relegated to the role of a traditional dictionary which offers nothing other than bookish definitions.

中文名詞	英文名詞	中文解釋	英文解釋
即期信用狀	Sight L/C	係銀行出進口外匯收支統計快報的項目之一，出進口案件以即期信用狀為收付貨款者。[3]	This is a component of the Preliminary Statistics of Foreign Exchange Proceeds and Payments (Exports and Imports), which refers to the payments for imports and exports by sight letters of credit.[3]
亞太經濟合作組織	Asia-Pacific Economic Co-operation (APEC)		
其他國際債務	International Other Liabilities	國際債務總額扣除國際存款及應付國際債券兩部份後之餘額，稱為其他國際債務，包括應付利息、不含應付款項之其他國際債務、及外商銀行來自總行之營運資金等。[3]	International other liabilities are the net balance of subtracting international deposits and international debt securities payable from the gross amount of international liabilities. They include interest payable, other international liabilities excluding payable items, and the operating capital of foreign banks from headquarters.[3]

Figure 2.3. The bilingual glossary offered by the CBC, retrieved from http://www.cbc.gov.tw/mp.asp.

Aside from the CBC, Taiwan's Financial Supervisory Commission (金融監督管理委員會) also provides a bilingual glossary of financial terms compiled from the databases of the Banking Bureau (銀行局), the Securities and Futures Bureau (證券期貨局), the Insurance Bureau (保險局), the Financial Examination Bureau (檢查局), and the Taiwan Insurance Institute (財團法人保險事業發展中心). Yet with no context offered, only word-to-word correspondence is available. Translators are therefore denied the chance to observe textual characteristics and features of language usages beyond the word level, which is the same predicament they are likely to be faced with when consulting the CBC glossary.

All four resources listed above can be helpful to some degree, but it is a pity that

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the collected language materials have not underwent proper processing to better suit translators' needs. In the next section, an introduction of computer-aided text processing is provided along with the review of several programs that can be employed to facilitate text analysis as well as resource extraction, thereby achieving the eventual goal, creating a user-friendly, comprehensive translation resource for specialized purposes.

2.3 Computer-aided Text Processing

Text processing techniques play a crucial part in transforming a collection of raw materials into a user-oriented corpus for translation purposes. In fact, as Mair (1996) contends, machine-readable corpora "are superior sources of data because they make it possible to analyze the data statistically…" (p. 69). Consequently, computer corpus analysis tools are particularly important when a tremendous number of texts are to be processed efficiently. The following sections present a wide array of corpus analysis software programs as well as an exploration into how to take advantage of the functions of such programs to extract desirable information from large collections of texts.

2.3.1 Corpus analysis tools for monolingual materials. In her article, "Lost in specialized translation: the corpus as an inexpensive and under-exploited aid for language service providers," Pastor (2007) gives a comprehensive introduction of corpus analysis tools that are either commercial or free, either Windows-/Mac-orientated or cross-platform, and either to be set up or web-based. Monolingual corpus-orientated programs listed in the article include *aConcorde*[18], the *Multilingual Corpus Toolkit*[19], *Conc*[20], *Simple Concordance Program*[21], *WordSmith Tools*[22],

[18] http://www.andy-roberts.net/coding/aconcorde.
[19] https://sites.google.com/site/scottpiaosite/software/mlct.
[20] http://www-01.sil.org/computing/conc/conc.html.
[21] http://www.textworld.com/scp/.
[22] http://www.lexically.net/wordsmith/.

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AntConc[23], etc. The functions of such tools vary, but as Bowker (1998) concludes, most of them are equipped with at least two major features, the word frequency list and the concordancer. The word frequency list presents a list of the word types contained in a text along with the number of tokens, i.e. the number of times each word occurs. Such frequency information is not only helpful in determining texts features but useful as well when translators need to choose a term from several synonyms. As for the concordancer, it extracts any searched term and presents it alongside the words that co-occur with it. This function allows translators to observe a searched term in different contexts at the same time. In addition, with the numbers of words to be displayed on the left and the right sides of the key term being variables, translators can adjust the extent of context according to their needs. By doing so, they have a better chance to develop a thorough conceptual understanding of the text in question and detect certain linguistic features which can be hard to spot without context, such as collocations, recurring sentence patterns, etc.

For the processing of monolingual texts in this research, corpus analysis tools *AntConc*, *kfNgram*[24], and *BFSU Collocator*[25] are to be employed. The subsequent sections therefore presents a detailed introduction to the three programs.

2.3.1.1 AntConc. *AntConc* is a downloadable corpus analysis toolkit that can run on the Windows, the Macintosh, and the Linux systems. This versatile freeware developed by Dr. Lawrence Anthony offers several tools which can facilitate text analyses, including:

(1) The concordance tool, which displays search results in the KWIC format,

[23] http://www.laurenceanthony.net/software/antconc/.
[24] http://www.kwicfinder.com/kfNgram/kfNgramHelp.html.
[25] http://www.bfsu-corpus.org/channels/tools.

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(2) The concordance plot tool, which plots search results as a barcode to indicate the locations where results appear in the searched texts,

(3) The file view tool, which shows individual text files for users to take a closer look at the results generated by other *AntConc* tools,

(4)The clusters/N-Grams tools, which allow users to search for common expressions of different lengths (N being a variable),

(5) The collocates tool, which extracts the collocates of a searched word in a list format,

(6) The word list tool, which presents all the words in a given text in a list ordered by word frequency, and

(7) The keyword list tool, which, through the log-likelihood statistical method, allows users to see the words that appear unusually frequently in a given corpus compared to a reference corpus (Anthony, 2014).

As this research is aimed at providing an inexpensive resource compiling method for translators who do not have programming skills or access to commercial analysis programs, *AntConc*, a freeware with a comprehensive set of text processing tools, is to be frequently used in the compilation process.

2.3.1.2 KfNgram. *KfNgram* is a free Windows program that can generate lists of n-grams, which refers to strings of n words frequently seen in a collection of texts (Fletcher, 2012). William H. Fletcher, the developer of *kfNgram*, incorporated into *kfNgram* routines he had programmed for *KWiCFinder*[26], a KWIC research tool for the web, and improved the performance of the new tool. According to him, compared to its predecessor, which virtually ceases to function when text files of 20 to 30 MB are loaded, *kfNgram*, which implements the suffix array algorithm, can accommodate large

[26] http://kwicfinder.com/KWiCFinder.html.

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files and extract n-grams according to the extent specified by the user. Though it seems to overlap with the clusters/N-Gram function of *AntConc*, *kfNgram* is preferred in that it generates lists of n-grams in text and HTML files, which is more convenient for further text processing.

2.3.1.3 BFSU Collocator. The *BFSU Collocator* is a free downloadable specialized corpus tool developed by Beijing Foreign Studies University (BFSU). This program facilitates the extraction of collocates in that it calculates and displays a range of statistical data commonly employed in studies on collocations, including mutual information (MI) and T-score, which are the two indicators to be used in this research. According to Church and Hanks (1990, p. 23), MI is calculated with the following formula:

$$I(x, y) = log_2 \frac{P(x, y)}{P(x)\,P(y)}$$

P(x, y), P(x), and P(y) refers respectively to the probabilities of the co-occurrence of x and y, the occurrence of x, and that of y. As Gao (2014) explains in his discussion of the same formula, it can be inferred that the MI value increases when P(x) and P(y) are relatively small or when P(x, y) is relatively large. He continues to rephrase this observation, saying that "if two words which rarely occur in the corpus frequently co-occur with each other, their MI value becomes very large" (p. 99). Due to the inaccuracy that may arise therefrom, T-score, a statistical significance test, is often considered along with MI in order to eliminate collocates that only co-occur by chance. Based on Gao's normalization of Church's 1994 formula in the same study (p. 100), T-score can be calculated as such:

$$t \approx \frac{f(x,y) - \frac{f(x)\,f(y)}{N}}{\sqrt{f(x,y)}}$$

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The three values, f(x), f(y), and f(x, y) stands respectively for the frequency counts of x, y, and the co-occurrence of the two words, while N refers to the number of tokens in a certain text. With frequency counts and word tokens taken into account, it is more likely to find out genuine instead of coincident collocations. Based on researchers' experiences, thresholds that are commonly used in terms of MI and T-score are 3.0 and 1.65 respectively (e.g., Church, 1994; Hunston, 2002). In the algorithmic principles of large-scale corpora like COCA and Wordbanks[27], for example, if the MI value for two co-occurring words are higher than 3.0, they qualify as real collocates; Wordbanks also employs the T-score measure, making it clear that two words with a T-score value higher than 1.65 are statistically significant in their correlations (Zuckermann, 2012). The two thresholds are therefore adopted in this research for the researcher to determine whether each pair of collocates is to be included in the final translation resource.

2.3.2 Corpus analysis tools for bilingual and multilingual materials. While there exists a vast array of monolingual text analysis tools, bilingual concordancers, which are required for the management of parallel corpora, are relatively scarce partly because, according to Pastor's conjecture in her same article, "translation memory systems already integrate alignment, concordancing, and terminology management, among other functionalities…" (p. 5). Indeed, translation memory systems (TMS), such as the widely used *SDL Trados* along with its side products like *WinAlign*, offer a rich set of functions and make sentence alignment, which is required of input files by bilingual concordancers, an easy task. However, for translators who cannot afford a TMS, freely available computer programs which can handle bilingual texts are an

[27] Collins WordBanks Online is a corpus of 550 million words which represent no less than eight varieties of English. It can be accessed at http://www.collins.co.uk/page/Wordbanks+Online.

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important resource. In the sections below, three tools to be employed in the processing of bilingual materials in this study are given a brief introduction.

2.3.2.1 LF Aligner. *LF Aligner*[28] is a freeware that can autoalign texts in up to 100 languages simultaneously in the Windows, Macintosh, and Linus environments. It can process input texts in the txt, doc, docx, rtf, html, pdf, and some other formats and generate .tmx, tabbed .txt, and .xls files. With a built-in set of dictionary data and the support of *hunalign*[29], another sentence aligner, *LF Aligner* is capable of accurate auto-alignment. Users can choose whether they would like their bilingual texts to be rendered in the sentence-segmented or the paragraph-segmented format (Sandras, 2015). The researcher of this thesis, however, has found out through actual use of this program that its paragraph alignment is more precise than the sentence-segmented version and requires much less human correction. As a result, *LF Aligner* is only employed to conduct paragraph-level auto-alignment in this research.

2.3.2.2 Notepad++. Written in C++, Notepad++[30] is a free downloadable editor for plain text files (Ho, 2016). It is developed as a replacement for the basic text processing tool, *Notepad*. Unlike its predecessor, whose interface resembles a blank piece of paper without any formatting, *Notepad++* shows the number of lines contained in a file and numbers each line. In addition, this advanced text editor allows users to view two files side by side at the same time, which is a handy function for the implementation of sentence alignment. The interface of *Notepad++* is provided in the chapter of methodology.

2.3.2.3 CUC_ParaConc. *CUC_ParaConc*[31] is a parallel corpus retrieval system

[28] https://sourceforge.net/projects/aligner/.
[29] http://mokk.bme.hu/en/resources/hunalign/.
[30] https://notepad-plus-plus.org/.
[31] http://ling.cuc.edu.cn/chs/News_View.asp?NewsID=244.

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developed by Dr. Cheng Nanchang, under the supervision of Professor Hou Min at the Communication University of China. It is a downloadable freeware that supports texts files encoded in Unicode, UTF-8, ANSI, etc. *CUC_ParaConc* can handle a parallel corpus that contains up to 17 languages, i.e. a set of original texts and its translations into 16 other languages. Users are allowed to search simultaneously for a key term in all the text files which they have loaded and determine the extent of context they would like to see the searched term displayed with (Cheng, 2013). Bilingual or multilingual materials must, however, be aligned before they can be run by the program. In other words, the level of alignment seen in the search results depends on the degree to which input materials have been pre-processed.

2.4 Collocation versus Lexical Bundle

As mentioned in the chapter of introduction, the purpose of this research is to compile a comprehensive translation resource which encompasses paragraph and sentence-aligned bilingual texts, lexical bundles, collocations, as well as specialized terms. Among the categories of the resource, *collocation* and *lexical bundle* are two similar concepts that require further discussion and clarification.

Met with quite a diversity of definitions, a "collocation" is, according to Gao's integrative review, seen by Kjellmer (1987) as "a sequence of words that occurs more than once in identical form and which is grammatically well-structured" (p. 133), by Sinclair (1991) as "the occurrences of two or more words within a short space of each other in a text" (p. 170), and by Cowie (1978) as "the co-occurrence of two or more lexical items as realizations of structural elements within a given syntactic pattern" (p. 132), while Martin, Ai, & Sterkenburg (1983) contend that "a significant collocation is one in which the two items co-occur more often than could be predicted on the basis of their respective frequencies and the length of the text under consideration" (p. 84).

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By contrast, lexical bundles are defined as "the most frequently occurring lexical sequences in a register (Biber, Conrad, Finegan, Johansson & Leech, 1999; Biber, Conrad & Cortes, 2004). Other terms like Sinclair's "chunks," Scott's (2009) "clusters," and "N-grams" in computational linguistics (Hsu, Li, & Liang, 2010), have been used to describe multi-word units as well[32]. Such units have been acknowledged to help "shape meanings in specific contexts" (Hyland, 2008, p.4), and it has also been contended that the "knowledge and use of a wide range of formulaic language" help language learners to achieve "naturalness" in language use (Allen, 2009, p.106). To qualify as lexical bundles, recurring word strings have to meet both frequency and distribution standards. There have been controversies over the minimum frequency with which multi-word units should appear, but consensus can hardly be reached (Friginal & Hardy, 2013). Researchers establish different thresholds according to the idiosyncratic features of their studies. For example, Biber et al. (1999) set the cut-off point at ten times per million words, Biber et al. (2004) 40 times, while Hyland (2008) opts for at least 20 times in one million words. In addition to frequency, distribution patterns are important to the extraction of lexical bundles in that sometimes multi-word units may be unevenly distributed across a corpus. Without this standard, a company name that occurs 50 times in one single article in a corpus composed of a hundred articles will be treated as a lexical bundle while in fact, it does not represent a universal feature in the genre or register of the texts that construct the corpus. Hence, researchers have adopted different distribution thresholds contingent on their studies. Biber et al. (1999), for example, require that recurring strings should appear in no less than five texts to qualify as lexical bundles, while those in the study of Hyland must exist in at least 10% of the texts. Researches on lexical bundles are largely focused on

[32] All the aforementioned terms can be used interchangeably for the purpose of this research.

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recurring strings of three or more (e.g., Biber et al., 1999) but contain no more than six consecutive words (P. Baker and Chen, 2010). Sequences of two-word units are often excluded as many of them are phrases that do not function on the discourse level (Biber & Conrad, 2005); similarly, Allen also explains that more often than not, lexical bundles "do not fit with traditionally idealized units of language, but may cross over a number of structures e.g. *In this study we, should be noted that*" (pp. 105-106).

It can be seen from the literature documented above that the definition of "collocation" does overlap with that of "lexical bundle" somehow. As a matter of fact, lexical bundles are sometimes regarded as extended collocations (Biber & Conrad, 1999; Hyland). However, lexical bundles are known to be incomplete structural units that often incorporate several function words, such as prepositions, articles, etc., to accompany a content (lexical) word (Allen; Cortes & Csomay 2015), while a collocation consists either of content words only, which is called a lexical collocation, or a lexical word with a grammatical structure that defines the meaning of the dominant word, which is called a grammatical collocation (Benson et al. 1997). In addition, collocates, unlike words in lexical bundles, need not come in a consecutive order (Nesselhauf, 2005), neither do they have to satisfy frequency or distribution standards. Hence, despite the definitional overlapping between lexical bundles and collocation, they are not two identical concepts. In the following chapter, the above-mentioned definitions will be recapitulated and related to the current research, and demonstrations of how to operate the text-processing tools introduced in this chapter will be provided in the order of the actual steps executed to create the translation resource.

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Chapter 3. Methodology

This research is aimed at, as indicated in the chapter of introduction, constructing a specialized translation resource to help translators deliver idiomatic translation output. In addition to creating the resource, however, this study is also intended to exemplify a free-of-charge method of resource compilation for translators who cannot afford commercial CAT tools or who do not have a background in computer science to develop programs for translation purposes. Therefore, the author has designed a completely free approach to corpora processing that requires no technical skills in programming in order to demonstrate an alternative to profit-making translation tools and complicated, programming-based methods. This approach consists of three major procedures, corpus construction, computer-aided text processing, as well as the final compilation of complementary information.

3.1 Corpus Construction

The step of corpus construction entails text collection and text preprocessing. Text collection, in this case, basically equals nothing other than copying texts from the websites of the four central banks and pasting them into text files. Even though there are indeed computer programs, such as TextSTAT[33], which can compile texts directly from the Internet and save users a decent chunk of time spent on the copy-and-paste process, especially when building a huge corpus, the texts collected by such programs are often interspersed with irrelevant contents and in need of further human examination. TextSTAT, for example, retrieves texts contained in all the URLs present on a webpage, including embedded advertisements. When the size of a corpus reaches a certain level, the time required for post-editing outweighs that saved by computer programs. In light of this defect of automatic text retrieval, it is decided that for the

[33] http://neon.niederlandistik.fu-berlin.de/static/textstat/TextSTAT-Doku-EN.html.

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purpose of this research, all the monetary releases available on the official websites of the CBC, the FRB, the BoE, and the ECB are to be collected manually. After text collection comes text pre-processing, which is made necessary by the formal irregularities which might arise in the previous step. As any trivial mistake can deviate the final result in a corpus-based research encompassing a large amount of materials, details such as spelling, text formatting, character encoding, etc. must all be examined.

3.1.1 Text collection. The paralleled texts studied in this research are retrieved from the official website of Taiwan's central bank. While the first Chinese press release of the board meeting's monetary decisions dates back to October, 2000, no corresponding English translations prior to June, 2001 are available, nor are the majority of minutes and supplementary materials appended to some of the Chinese originals. Hence, only the Chinese releases and corresponding English versions issued from June, 2001 till the time of data collection (February, 2016) are included in the parallel corpora in order to make sure the collected materials are completely parallel. The number of bilingual releases totals 64, with a sum of 56,732 Chinese characters and 39,296 English words.

The three comparable corpora in this research project are composed respectively of the monetary releases by the central banks of the U.S., England, and the European Union. Different from the materials in the parallel corpus, however, all three reference corpora contain additional information appended to the main policy statements, i.e. meeting minutes in the cases of the FOMC as well as the BoE and introductory statements when it comes to the ECB. Out of all three comparable corpora, the FOMC corpus has the largest size, comprising 1,021,621 words collected from 185 sets of monetary releases and meeting minutes issued during the 20 years between January, 1996 and January, 2016. Coming next in size is the BoE corpus, which consists of

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482,393 words retrieved from 122 pairs of monetary policy summaries and meeting minutes released from January, 2006 to February, 2016. As for the ECB corpus, it contains 299,794 words from 208 brief accounts of policy decisions along with corresponding introductory statements. The collected monetary releases date from January, 2016 back to January, 1999, when the ECB actually started releasing rate-setting decisions after its establishment in June, 1998. The general information on each corpus is summarized in Table 3.1 below.

Table 3.1

General Information on Four Corpora Covered in this Research

	Parallel Corpus		Comparable Corpora		
	Original	Translation	United States	England	European Union
Source	CBC Official Website	CBC Official Website	FRB Official Website	BoE Official Website	ECB Official Website
Language	Chinese	English	English		
Time Period	2001-2015	2001-2015	1996-2016	2006-2016	1999-2016
Size	56,732 Characters	39,296 Words	1,021,621 Words	482,393 Words	299,794 Words

3.1.2 Text preprocessing. The texts collected from the Internet are not readily usable in that they abound in spelling mistakes, unnecessary tags, and formatting irregularities. The step of preprocessing, therefore, has to be executed in order for these raw language materials to be processed by computer programs. First, as the language processing tools employed in this research can only read plain texts, all the tags and hyperlinks are removed. In addition, garbled texts and spelling mistakes are often observed in the copy-and-paste process, with a great number of spaces appearing

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between two neighboring letters in a same word, especially when materials are converted from PDF to *Microsoft Word* files. All the texts, after being tidied up using programs such as *Microsoft Word*, *PDF Converter*, and *Notepad++*, are saved into txt files in UTF-8, which is the only encoding format compatible with all the text analyzing tools to be used in the following steps. The whole process of corpus construction took roughly two weeks.

3.2 Computer-aided Text Processing

Once the Chinese-English parallel corpus and the three English comparable corpora are constructed, the materials are to be handled with text analysis tools before the final translation resource can be extracted. In this major step of text processing, the four sets of English texts are processed by *AntConc* and *kfNgram*, which are operated to generate lists of keywords and recurrent word strings respectively.

3.2.1 Keyword generation. As a start, the four sets of English texts, i.e. all materials excluding the CBC Chinese originals, are loaded into *AntConc* to generate four keyword lists. The keyword list tool of *AntConc* requires a reference corpus, which it contrasts the loaded set of texts against, to produce a list of keywords that appear more frequently in the loaded than in the reference corpus. The reference corpus adopted in this study is the Brown Corpus, which contains approximately one million words collected from 15 different text categories such as news articles, editorials, fictions, government publications, mysteries, etc. to make it a good reference (Francis & kučera, 1964-1979). The reason why Brown Corpus is preferred over larger English corpora which have been constructed in more recent years is that its word frequency list can be freely downloaded from the Internet from various sources, such as Laurence Anthony's Website at http://www.laurenceanthony.net/software/antconc/. After activating *AntConc* and clicking *Tool Preferences* on the toolbar, the reference

corpus of each researcher's choice can be loaded, as shown in Figure 3.1 below.

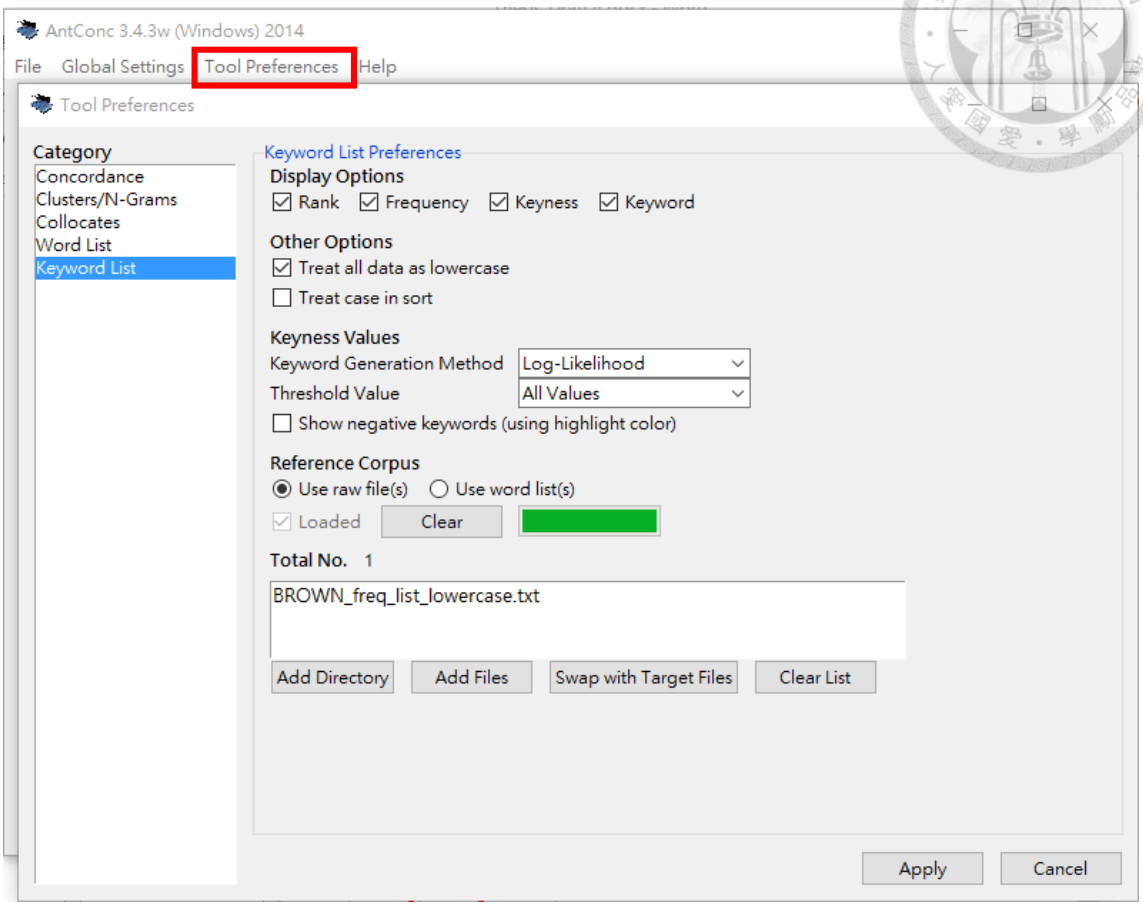

Figure 3.1. The *AntConc* user interface for loading a reference corpus.

With the reference corpus loaded, users can go to *Keyword List* on the tool bar and click on *Start* to generate a keyword list of the studied corpus. As Figure 3.2 on the next page illustrates, the higher a word's keyness is, the more frequently it appears. It can also be decided by users whether the list should be sorted by keyness, frequency, keyword, or keyword end.

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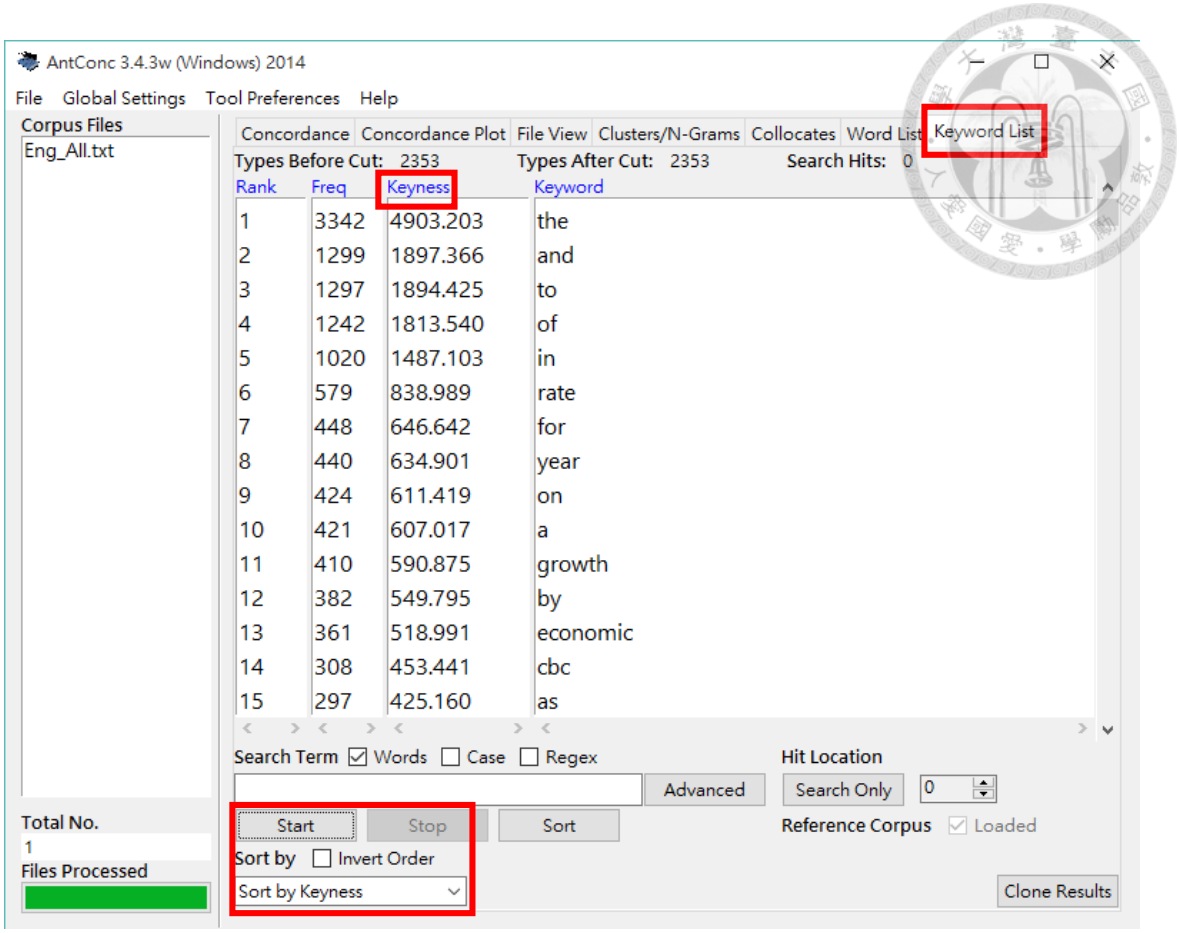

Figure 3.2. The AntConc user interface for generating a keyword list.

With each of the four sets of English texts receiving a keyword list of its own, words with keyness scores higher than 6.63 are subsequently singled out for further comparison. So far, there seems to be no popular consensus on keyness cut-off points (P. Baker 2004). As different studies come with different corpora and research questions, it is unlikely to reach consensus on cut-off points. According to Rayson's (2016) study[34], the difference between two frequency scores is expanded along with the value of log-likelihood (LL). His calculations indicate that an LL value no lower than 3.84 reflects a significance level of 0.05, while a value of 6.63 is significant on the level of 0.01. Taking into consideration Rayson's results as well as corpora sizes, available

[34] Available at http://ucrel.lancs.ac.uk/llwizard.html.

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resources, and time limits, the cut-off point in the current research is set at 6.63.

The selected keywords are then sorted through, with elimination applied to words that appear in only one corpus or words that appear in two or more corpora but does not exist in the CBC translations. Out of the keywords that have gone through the elimination process, content words (nouns, verbs, and adjectives) which are recurrently-used in monetary policy releases or are related to economic and financial concepts are selected. Around half a day's work was devoted to the entire process of keyword selection. At the end, all keywords that remain are words that exist in the CBC corpus and at least one other corpus. Such an elimination criterion is designed to make sure that the final translation resource is centered on the Chinese-English translation of the CBC's Chinese originals and increase the probability of obtaining reference usages from the three comparable corpora.

As Scott (1999) proposes, keyword analyses underline the aboutness of a certain genre; McEnery, Tono, and Xiao (2006) also confirm that such a kind of analysis can "reveal the salient features which are functionally related to that genre" (p. 308). Keywords are given particular attention here exactly because they represent heavily-used words as well as important concepts in the releases and are expected to direct the researcher's effort towards forming a resource of maximum benefits to translators.

3.2.2 Generation of recurrent strings. As reviewed in Section 2.4, lexical bundles are recurring multi-word units which represent the features of texts of a certain register. Since such bundles offer a clue to authentic language use prevalent in a collection of texts, they are employed in this step as a medium through which natural language usages are extracted from the corpora.

When it comes to frequency and distribution standards, in addition to variants such as corpus sizes, time limits, and resources, it should also be taken into account that

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the thresholds need to yield enough data for further analyses. With a comprehensive array of impact factors considered, the minimum frequency and distribution thresholds are set respectively at 40 times per million words and 10% of all texts. Based on the criteria, Table 3.2 below summarizes the frequency and distribution[35] standards to be applied on the four corpora.

Table 3.2

Frequency and Distribution Thresholds for Four English Corpora

Corpus	CBC Translation	FOMC	BoE	ECB
Corpus Size (Words)	39,296	1,021,621	482,393	299,794
Cut-off Frequency (Times)	2	41	19	12
Number (Set) of Articles	64	185	122	208
Min. Number of Texts	6	19	12	21

Despite the knowledge that strings of two words are often excluded in the extraction of lexical bundles as many of such strings do not function on the discourse level, *kfNgram* is still set to generate recurring clusters of *two* to six words to prevent prevalent double-word collocations from being sifted out because the strings generated in this step will act solely as an intermediary dataset through which the final translation resource is extracted. In addition, the distribution thresholds have not yet been applied for the exact same reason.

Figure 3.3 on the next page illustrates how the number of units in multi-word expressions and the minimum frequency with which the expressions have to occur in a loaded file can be specified respectively in the fields of "nGrams" and "Floor."

[35] Each set of monetary policy releases and their correspondent meeting minutes (introductory statements in the case of the ECB) is counted as one, hence the numbers in Table 3.2.

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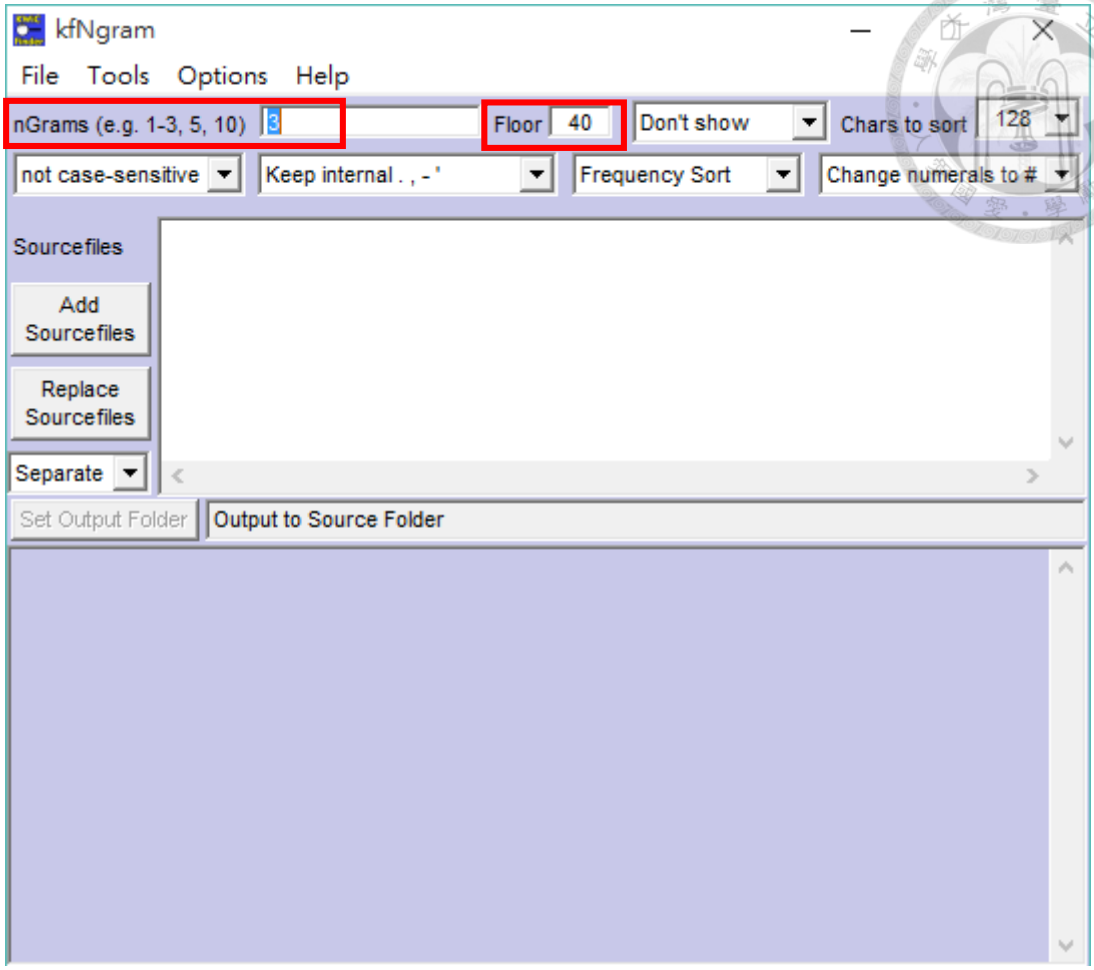

Figure 3.3. The user interface of *kfNgram*.

The four output lists[36] of recurrent strings existing in the four English corpora are to be combined with the final selection of keywords compiled in Section 3.2.1 and function as a pool of key texts from which the target resource will be extracted.

3.2.3 Resource extraction. This section presents the extraction of the target translation resource using the combination of the final selection of keywords and the lists of frequently-occurring multi-word expressions. The reason why keywords and clusters are employed as the medium through which the resource compilation is

[36] *KfNgram* outputs one .txt file every time a different value of "n" is entered. Hence, a total of 20 lists are generated, and each list takes the program no more than 20 seconds to produce. For the convenience of further review, the researcher has integrated the five lists retrieved out of each corpus into a single file, leaving only four files to undergo the extraction that will be performed in Section 3.2.3.

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conducted lies in the fact that they represent, as indicated in Sections 2.4 as well as 3.2.1, outstanding features and distinguished themes and are thus expected to contain key resources which translators need when working on similar contents. Therefore, even though specialized terms and collocations are not theoretically required to meet the frequency standard of at least 40 occurrences per million words, these two categories of the translation resource are still extracted from the *kfNgram* output files so as to ensure that the selected usages appear recurrently in monetary releases and are of significant importance as well as usefulness to translators.

The first step of resource extraction is to manually search in the CBC list of strings for the selection of keywords. The researcher evaluates the search results according to their relevance to the specialized content and the text type in question as well as their potential degree of helpfulness to translators in order to decide whether the results are to be included into the resource. For example, "banks were also," which occurs four times in the corpus, is judged to be of little help to translators in that it is merely a simple grammatical construction instead of a typical expression that exemplifies the register of monetary releases. The results which are considered worthy of compilation are then categorized into three groups, *specialized term*, *collocation*, and *lexical bundle*. In the next step, the same group of keywords are searched for in the lists of strings generated out of the three comparable corpora, yet only the usages which are relevant to the already-selected results from the CBC corpus are to be included. In the category of collocation, for instance, the CBC corpus provides an adjective, "stable," that follows the verb, "remain," to modify the keyword, "rate." In the meantime, the search through the FOMC clusters returns with two adjectives, "elevated" and "subdued," which function in the same position albeit their different semantic content. Results like these two modifiers are deemed not only relevant but

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also useful for reference and thus added into the translation resource.

In the process of resource classification, there are several principles to be followed. First, due to the finance and economy-related content of monetary releases, only words or phrases whose definitions have been established on *Investopedia*[37], the largest financial education website around the world ("About Us," n.d.), are considered specialized terms. Second, as reviewed in Section 2.4, lexical bundles are generally defined as incomplete structures of three to six consecutive words that usually incorporate several function words, while collocations are widely regarded as frequently-occurring sequences of two or more words either consisting all of lexical items or containing a dominant word plus functional collocates. In other words, collocations tend to function on the phrase level, while lexical bundles are supposed to epitomize text features on the discourse level (see the summary in Table 3.3).

Table 3.3

Categorization Criterion for "Collocation" and "Lexical Bundle"

	Collocation	Lexical Bundle
Function	Phrase Level	Discourse Level
Number of Words	Two or More	Three to Six (Consecutive)
Composition	Complete Units *or* Dominant Words + Functional Collocates	Incomplete Structures Incorporating Several Function Words

In addition to the distinction from collocations, the distribution patterns of multi-word strings have to be examined in this step using the concordance plot tool of *AntConc*. As illustrated by Figure 3.4 below, the concordance plot tool of *AntConc* shows the distribution pattern of a searched term in a graphical manner with a long bar,

[37] http://www.investopedia.com/.

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and the short vertical lines inside indicate the locations where the term occurs in a corpus. As the monetary releases in all four corpora are copied and pasted in a chronological order, the researcher can determine whether a string qualifies as a lexical bundle by observing the number of and the space between vertical lines. The whole process of resource extraction, which includes searching for the keywords in the *kfNgram* output lists, evaluating the searched usages, and verifying them based on different standards took approximately two weeks.

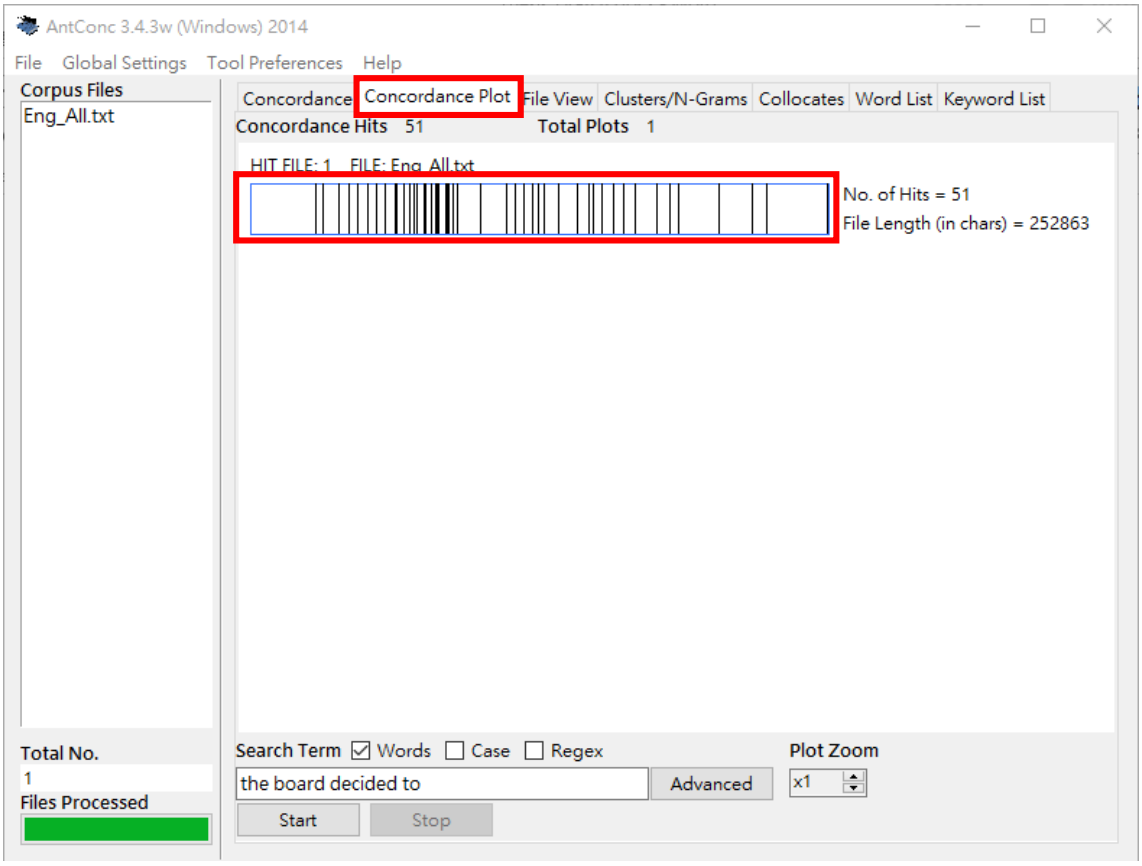

Figure 3.4. The user interface of the *AntConc* concordance plot tool.

Up until the completion of this step, the extraction and classification process is nearly finished. What the resource still lacks is the final addition of complementary information which can round off the whole series of steps and establish the final result as a comprehensive translation resource.

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3.3 Final Compilation of Complementary Information

Though extracted with the help of several text processing programs, the translation resource compiled in Section 3.2.3 still comes with a few problems. First, due to the fact that not all collocates appear in a consecutive manner, words which co-occur frequently but are separated in sequence might be overlooked. In the phrase, "sustainable economic growth," for example, there are two possible collocates for growth, sustainable and economic. Yet as the list generated by *kfNgram* only shows the time of occurrence of each word string, it is impossible to examine the relations between growth and its two candidate collocates. Under such circumstances, it is likely that only the nearest collocate, economic, would be included in the entry of "growth" as the researcher is lacking in an objective way to verify the degree of co-occurrence between the keyword and "sustainable." Also, the lack of statistical data in *kfNgram* output lists may also lead to the inclusion of coincident collocations.

The second shortcoming of the resource at this stage is that it consists only of the CBC's English translations and relevant usages selected from the three reference corpora. Hence, translators are likely to find themselves in need of original Chinese texts in order to develop a more thorough understanding of the relations between the target and source texts. Even with Chinese texts integrated into the resource, translators might still be confused by English usages without correspondent originals or struggle in the search of the conceptual framework of an entire text.

In light of the above-mentioned defects, a few more steps are to be executed so as to enhance the correctness and comprehensiveness of the translation resource. This section thus presents the solutions to the above-mentioned problems and ends this chapter with the final compilation of complementary information which takes the resource up another notch.

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3.3.1 Verification of collocations. As explained in the introductory paragraph of Section 3.3, the oversimplified data generated by *kfNgram* may cause some frequently-used collocations to be left out of the final translation resource. Besides this defect, the results from *kfNgram* can only guarantee that the extracted collocations are of a certain degree of importance in monetary releases because the minimum frequencies of occurrences for each corpus have been specified in the program, but further quantitative information on the mutual relations between collocates are not provided. In this step, therefore, the four English corpora are processed separately again with another text analyzing tool, *BFSU Collocator*, which specifies not only the number of times a pair of words appear together but also the pair's MI value, T-score, and other statistical data. Among these statistical indicators, MI and T-score are widely co-employed to extract collocations by researchers, such as Church & Hanks (1990) as well as Church et al. (1991). The two indicators are therefore adopted to be the selection criteria herein. As for the thresholds, the commonly used MI and T-score cut-off points of 3.0 and 1.65, which have been reviewed in the preceding chapter, are adopted in this research as well.

As shown in Figure 3.5 on the following page, one can adjust the numbers of words on both sides of the searched keyword for the program to display along with an array of statistical measures, and a double click on any entry allows users to further examine a collocation in the KWIC format in the lower part of the window. Based on the observations made during the first extraction of collocations from *kfNgram* string lists, the optimal number of words to set on the searched term's both sides is three. The corpus of the CBC's English translations is the first to be imported, and each keyword from the final selection compiled in Section 3.2.1 is searched for in the collocator. Collocates with an MI value higher than 3.0 *and* T-score higher than 1.65 are then contrasted with the ones which have been selected in Section 3.2.3 to examine

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whether there are any overlooked genuine collocations or coincident collocations which have been falsely included. The three reference corpora are then loaded separately into the program to examine the results obtained in Section 3.2.3. Similarly, only pairs with an MI and T-score measure higher than the threshold values are allowed to stay in the resource so as to improve the correctness of the *collocation* category. This verification process took roughly two days.

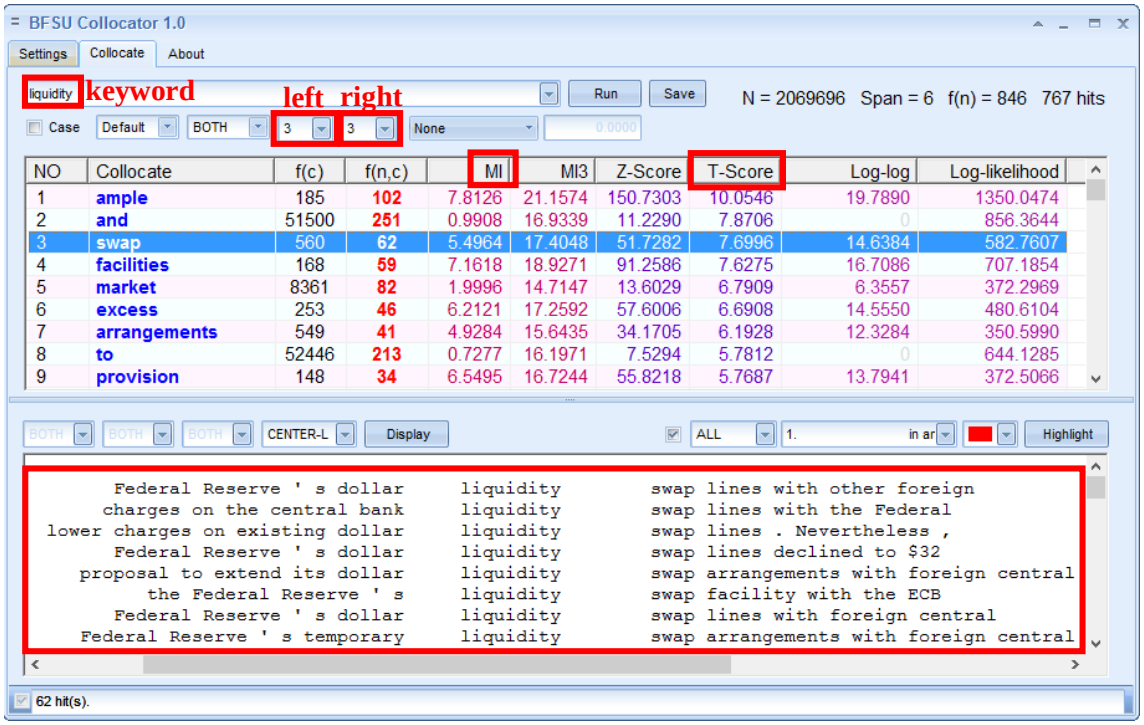

Figure 3.5. The user interface of *BFSU Collocator*.

Sections 3.2-3.3.1 presents the preparation steps, including the generation of keyword lists and recurrent strings as well as the actual extraction of the target translation resource. Figure 3.6 on the next page offers a graphic representation of all the steps covered in the whole process for a comprehensive illustration.

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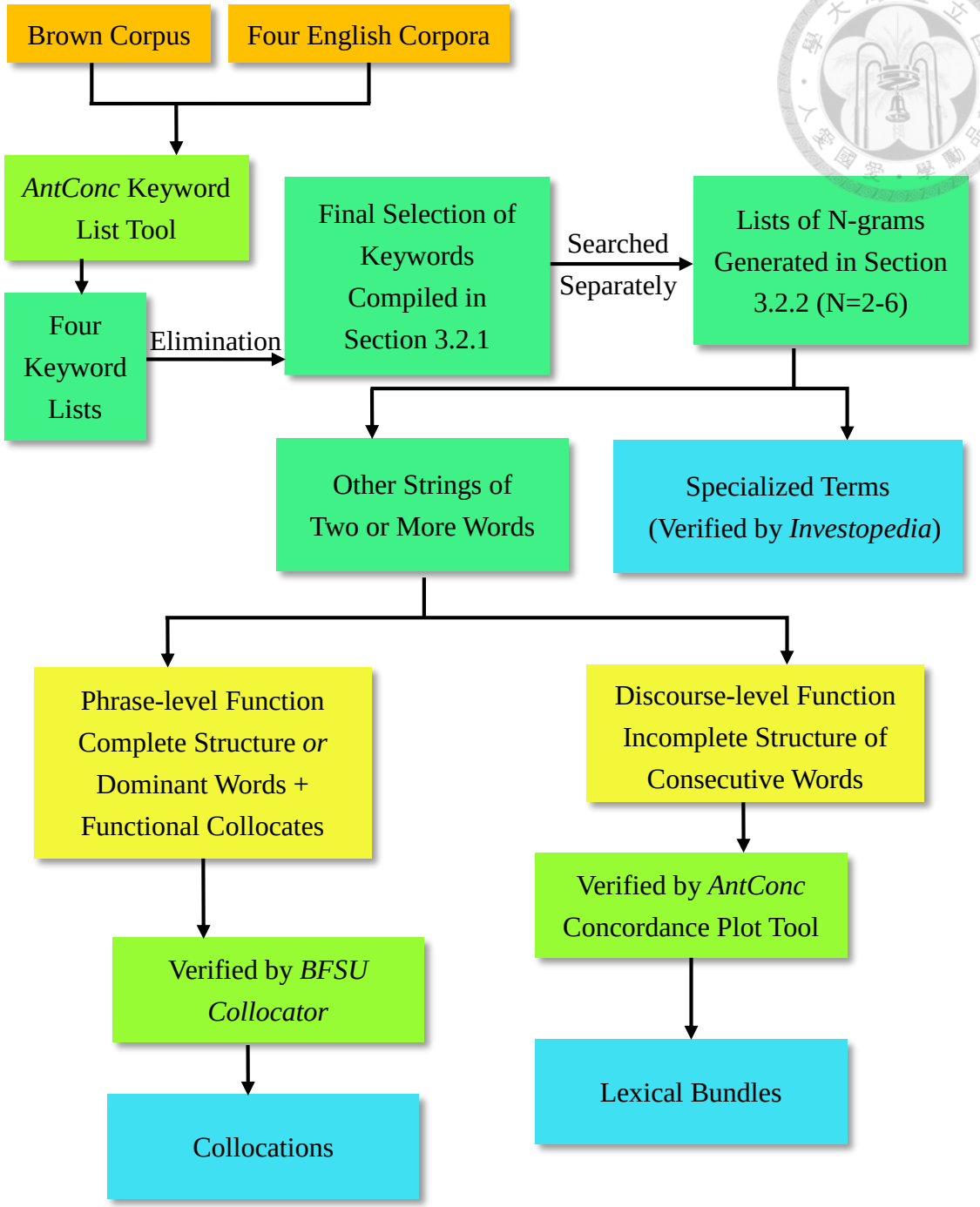

Figure 3.6. A graphic summary of all the steps executed in Sections 3.2-3.3.1.

3.3.2 Paragraph/sentence alignment and Chinese-English pair-up. With an aim to provide translators with text information above the word/multi-word levels and help them comprehend the conceptual structures of monetary releases, paragraph alignment is conducted on the CBC's bilingual texts using *LF Aligner*. *LF Aligner* is a

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program that is able to execute both sentence and paragraph alignment, but it has been found out by the researcher through actual use that the result of the latter outperforms that of the former in accuracy. Therefore, this text processing tool is only employed to create aligned paragraphs in this research (Figure 3.7).

Figure 3.7. The user interface of *LF Aligner*.

Users can choose whether they prefer to review the results via the graphic editor of *LF Aligner* or an excel file after the alignment is completed. For the convenience of further text processing, the latter is opted for in this study. The generated file is as follows on the next page (Figure 3.8).

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1	中央銀行新聞稿90年6月28日發布	Central Bank of China PRESS RELEASE Release
2	中央銀行理監事聯席會議決議	MONETARY POLICY DECISIONS OF THE CBC BOARD MEETING
3	經審慎觀察上述國內外經濟金融情勢之發展，央行未來貨幣政策要點如下：	In line with the deliberations made at the Board meeting on June 28, the future directions for monetary policy of the Central Bank of China,
4	在通膨無虞下，考量我國當前內需及就業有待提振之情況，為反映國內市場利率走勢，並兼顧促進經濟成長，央行重貼現率、擔保放款融通利率及短期融通利率分別調降0.25個百分點，由目前之年息3.75%、4.125%及6.0%，分別調整為年息3.50%、3.875%及5.75%，自6月29日起實施。	1. The Bank decided to cut the discount rate, the rate on accommodations with collateral and the rate on accommodations without collateral each by 25 basis points, from 3.75%, 4.125% and 6.0% to 3.50%, 3.875% and 5.75%, respectively, effective from June 29. The decision is made by taking into account the precondition that inflationary pressures
	我國經常帳連年順差，外匯存底豐沛，目前新臺幣實質有效匯率指數處於歷年最低水準，但邇來外匯市場受不實報導影響，產生預期貶值心理，致匯市略有波動。央行重申，新臺幣匯率原則上由市場供需決定，但若遇季節性、偶發性因素或市場存在異常預期心理，導致市場	2. Taiwan has registered a sustained current account surplus and has enjoyed abundant foreign exchange reserves. While the real effective exchange rate index of the NT dollar stands at a record-low level, a few ungrounded media reports have recently generated expectations of an NT

Figure 3.8. The paragraph alignment file generated by *LF Aligner*.

As long as the two input files are, in principle, presented in a similar, orderly format, the result produced by *LF Aligner* proves to be fairly accurate. Approximately half an hour's human post-editing is sufficient to correct the alignment to 100%.

Though providing more comprehensive pictures of entire articles, paragraph-aligned materials are still inconvenient sometimes because they are chunks of texts where it is difficult for translators to locate desired information. It is therefore decided that sentence-aligned bilingual texts should be included into the translation resource as well. This step, however, has to be executed manually as there has hardly been any freeware that can achieve highly accurate sentence alignment. *Notepad++*, the free plain text editor which can present two files at the same time and show the serial number of each line, is employed to assist this process (see Figure 3.9 on the subsequent page), which took around three days.

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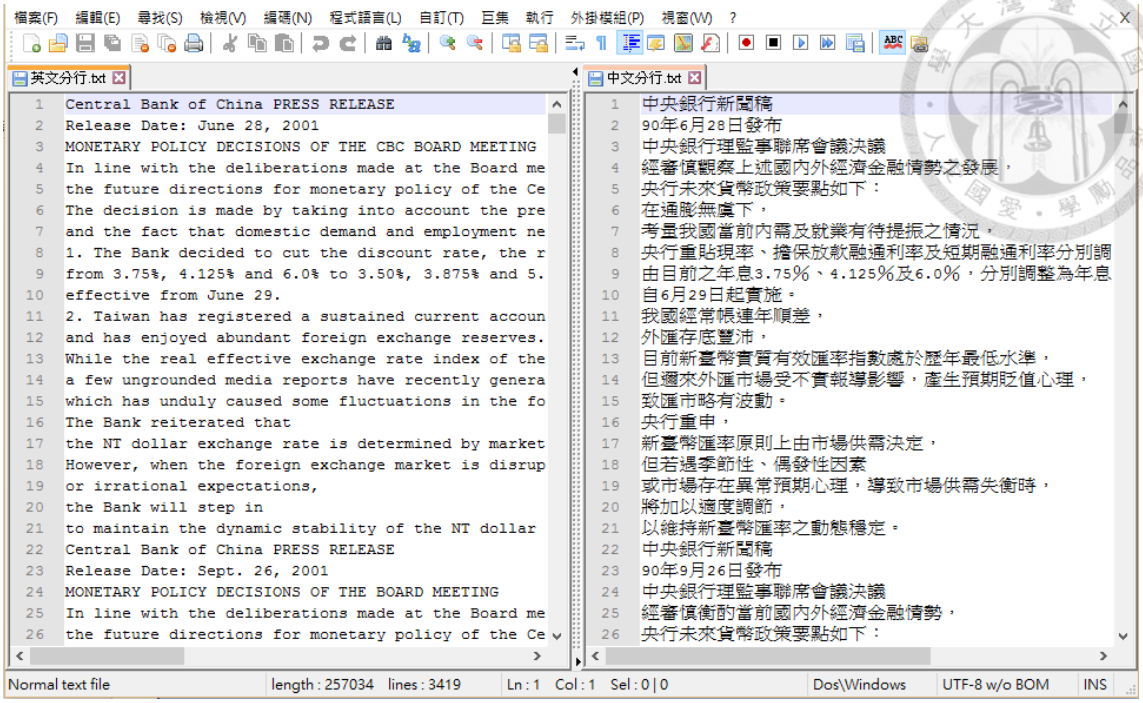

Figure 3.9 The user interface of *Notepad++*.

With the sentence and paragraph-level alignment completed, the Chinese originals which correspond to the English specialized terms, collocations, and lexical bundles extracted in Section 3.2.3 can now be paired up with their translations in a much more efficient way because it is no longer necessary to search in huge blocks of unprocessed Chinese texts. It is certainly feasible to use the excel or the plain text files in this step, yet the *CUC_ParaConc* text analysis tool offers a more user-friendly layout that can facilitate the process of pairing-up. This program can process bilingual or multilingual texts, and in the case of the former, materials stored in one single or two separate files are both supported. The sole restriction is that input materials have to be aligned beforehand. If texts are stored in two different files, both file names must be identical except for their prefixes. For example, the two files containing the aligned Chinese and English texts in this research are respectively named “C_text” and “E_text.” After entering file prefixes and specify source/saving directories as well as

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the text encoding method, users can also determine whether they would like the concordancer to be case sensitive, whether results are to be displayed in the KWIC format, etc. (Figure 3.10)

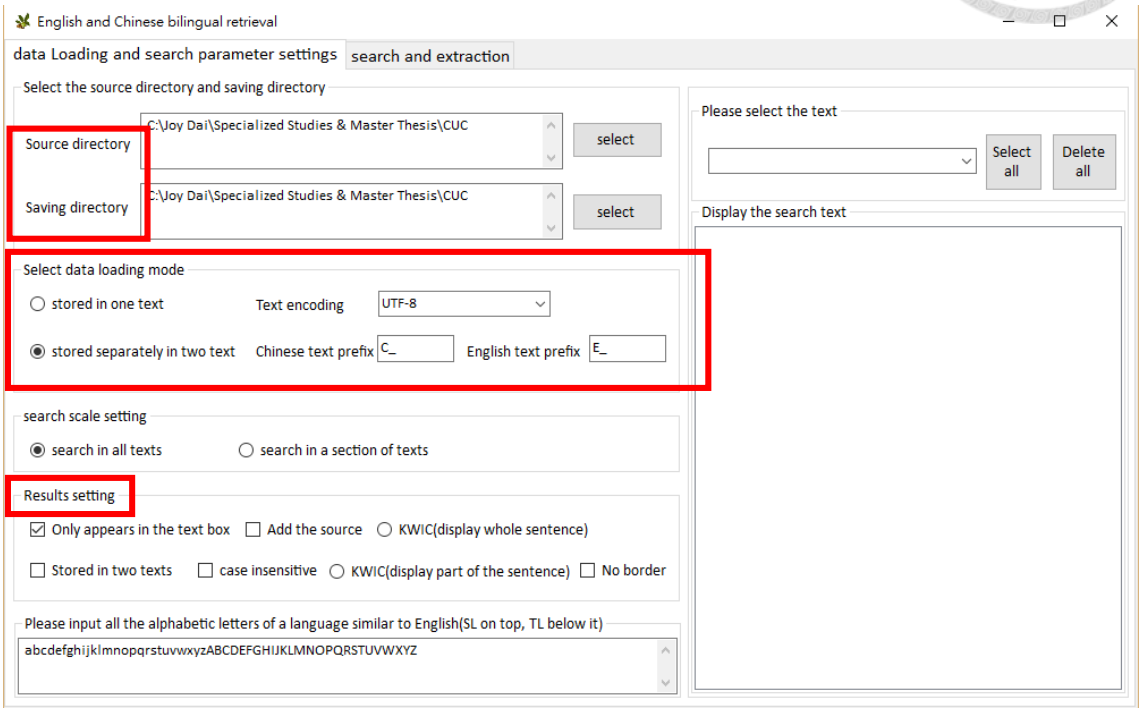

Figure 3.10. The setting interface of *CUC_ParaConc*.

With the setting completed, users can search for Chinese or English terms by switching to the *search and extraction* interface. It can be seen in Figure 3.11 on the next page that results are presented line by line in a fairly clear layout, with the searched term colored red so that users can locate it at a glance. Considering that sentences are smaller units of language than paragraphs and therefore easier to compare, the pairing-up process is completed with the sentence-aligned bilingual texts using *CUC_ParaConc*, within one day. Even so, however, the paragraph-aligned releases are still a potential resource which can be reformatted by *CUC_ParaConc* to become a proper reference when translators need to examine the texts from a broader angle.

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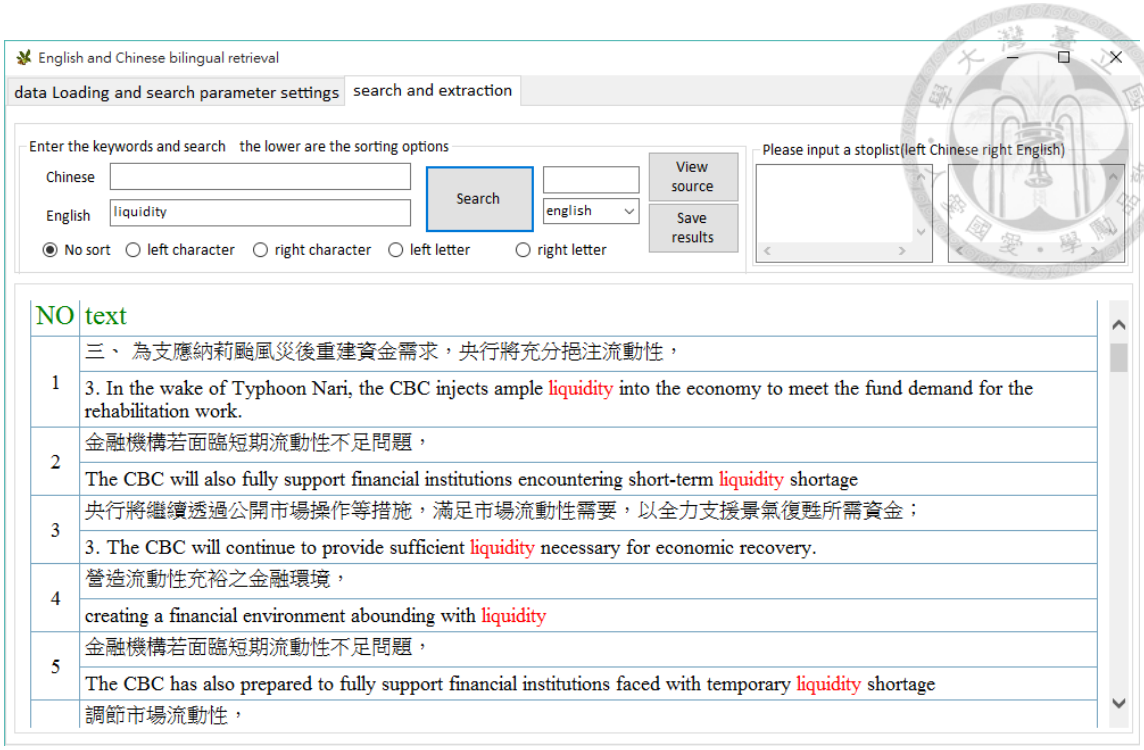

Figure 3.11. The results page of *CUC_ParaConc*.

Should bilingual texts be stored in one file, a source sentence must be placed in the previous or the subsequent line of its correspondent target sentence, as shown in the figure below.

檔案(F) 編輯(E) 格式(O) 檢視(V) 說明(H)

中央銀行新聞稿
Central Bank of China PRESS RELEASE
90年6月28日發布
Release Date: June 28, 2001
中央銀行理監事聯席會議決議
MONETARY POLICY DECISIONS OF THE CBC BOARD MEETING
經審慎觀察上述國內外經濟金融情勢之發展，
In line with the deliberations made at the Board meeting on June 28,
央行未來貨幣政策要點如下：
the future directions for monetary policy of the Central Bank of China, Taipei
在通膨無虞下，
The decision is made by taking into account the precondition that inflationary
考量我國當前內需及就業有待提振之情況，
and the fact that domestic demand and employment need to be stimulated.
央行重貼現率、擔保放款融通利率及短期融通利率分別調降0.25個百分點，
1. The Bank decided to cut the discount rate, the rate on accommodations with
由目前之年息3.75%、4.125%及6.0%，分別調整為年息3.50%、3.875%及5.75%，
from 3.75%, 4.125% and 6.0% to 3.50%, 3.875% and 5.75%, respectively,
自6月29日起實施。
effective from June 29.

Figure 3.12. The format in which bilingual texts should be saved in one file.

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Upon the completion of the pair-up of the selected English specialized terms, collocations as well as lexical bundles with correspondent Chinese originals, the entire series of text processing and resource extraction steps have also come to an end. The results are presented and discussed in the following chapter.

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Chapter 4. Results & Discussion

This chapter presents the research results obtained in the series of steps described in the chapter of methodology.

4.1 Keyword Lists

In Section 3.2.1, four keyword lists are generated respectively from the four corpora containing the English monetary policy releases issued by the CBC, the FOMC, the BoE, and the ECB using *AntConc*. Words in these corpora are contrasted with the Brown Corpus and assigned scores by the keyword list tool according to their keyness. The higher the score of a word is, the more frequently it occurs in the corpus to which it belongs. The content words (nouns, verbs, and adjectives) with keyness scores higher than 6.63 which are recurrently used in monetary releases or related to economic and financial concepts are singled out for further elimination, where the words that do not exist in the CBC corpus or occur in merely one corpus are excluded. The keywords that remain for the subsequent resource extraction are listed as follows. (Table 4.1)

Table 4.1

Final Selection of Keywords

	Number of Corpora Where Keywords Occur				
		Four (All)		Three (CBC+2)	Two (CBC+1)
Keywords	rate growth economic economy financial market policy monetary price commodity	inflation inflationary mandate consumption stability bank meeting demand mortgage volatility aggregate	interest term decision credit point investment liquidity expectation employment unemployment	dollar annual target loan	board recession macroeconomic reserve currency

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A total 40 keywords remain after the elimination, with 31 of them (77.5%) occurring in all four corpora. The fact that the majority of the final selection of keywords are shared by the CBC corpus and all three comparable corpora not only increases the possibility for the researcher to find reference usages but also shows that most of the keywords which are employed to extract the translation resource are indeed of universal use in English monetary policy releases. Out of the collection of keywords, "policy," "mandate," "meeting," "decision," "target," "board," and "macroeconomic' tend to bring the image of the government to people's mind, while all the others are related to economic and financial concepts in one way or another. In other words, all the keywords that remain prove to be significantly representative of the text content studied in this research. It can therefore be inferred with reasonable confidence that the final resource compiled with the help of these keywords are to be helpful to financial and economic translators. Even though this selection contains a number of keywords which may be deemed fairly basic, such as rate, growth, price, and so on, it should be noted that these keywords only offer a channel through which the final resource is created. As basic as "rate" might seem, for example, it can lead to the extraction of specialized terms like "effective exchange rate index," "overnight interbank call loan rate," "remunerative rate," etc.

4.2 Generation of Lexical Bundles

In the step described in Section 3.2.2, the four corpora composed of the English monetary releases issued by the central banks of Taiwan, the U.S., England, and the European Union are loaded separately into *kfNgram*. The cut-off frequencies correspondent with the four corpora are 2, 41, 19, and 12 respectively, which are calculated based on the frequency threshold of 40 times per million words. After the computer program generates from every corpus five independent text files that contain

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recurrent strings of two to six words, these files are all combined into a single one, leaving only four lists to go through further processing. The lists of word strings generated out of the CBC, the FOMC, the BoE, and the ECB corpora comprise respectively of 20,318, 10,999, 9,898, and 13,277 bundles, as summarized in Table 4.2.

Table 4.2

Recapitulation of Corpora Information and Results Generated by KfNgram

Corpus	CBC	FOMC	BoE	ECB
Corpus Size (Words)	39,298	1,021,621	482,393	299,794
Minimum Frequency (Times)	2	41	19	12
Total Number of N-grams (N=2-6)	20,318	10,999	9,898	13,277

The CBC collection of texts, though the smallest corpus in size, surprisingly boasts the greatest number of recurring words strings. If analyzed from another angle, however, it stands to reason that the number of N-grams moves inversely with the corpus size as larger corpora may tend to contain language compositions of wider varieties. In addition, the frequency threshold for the CBC texts stands extremely low compared to the three comparable corpora, which arises from the fact that all the minimum frequencies are converted from the principle of 40 times per million words despite the substantial difference in corpora sizes. When the standard drops to as low as two, a significant number of word clusters are approved by the selection mechanism of *kfNgram* as recurring strings. This phenomenon can also be observed in the data of the ECB text collection, which is the smallest of all three reference corpora but garners a higher number of N-grams than its American and British counterparts.

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4.3 Resource Extraction

In the step of resource extraction, the keywords presented in Table 4.1 are searched for in the CBC list of word strings first. After usages that are deemed helpful to financial and economic translators' work are extracted, the same batch of keywords are searched for again in the lists of recurring clusters generated from the three comparable corpora. Usages deemed relevant to the already-extracted CBC ones are selected with an aim to compile a collection of reference materials that can improve translators' English output. The step of extraction proved to be a time-consuming process because as mentioned in Section 4.2, the small size of the CBC corpus resulted in the low frequency threshold, which subsequently caused the generation of a huge number of word strings. As the searching process is only conducted in the plain text files using the basic search hotkey, "Ctrl+F", it takes a large amount of time to review the materials as well as to determine what and what not to include (Figure 4.1).

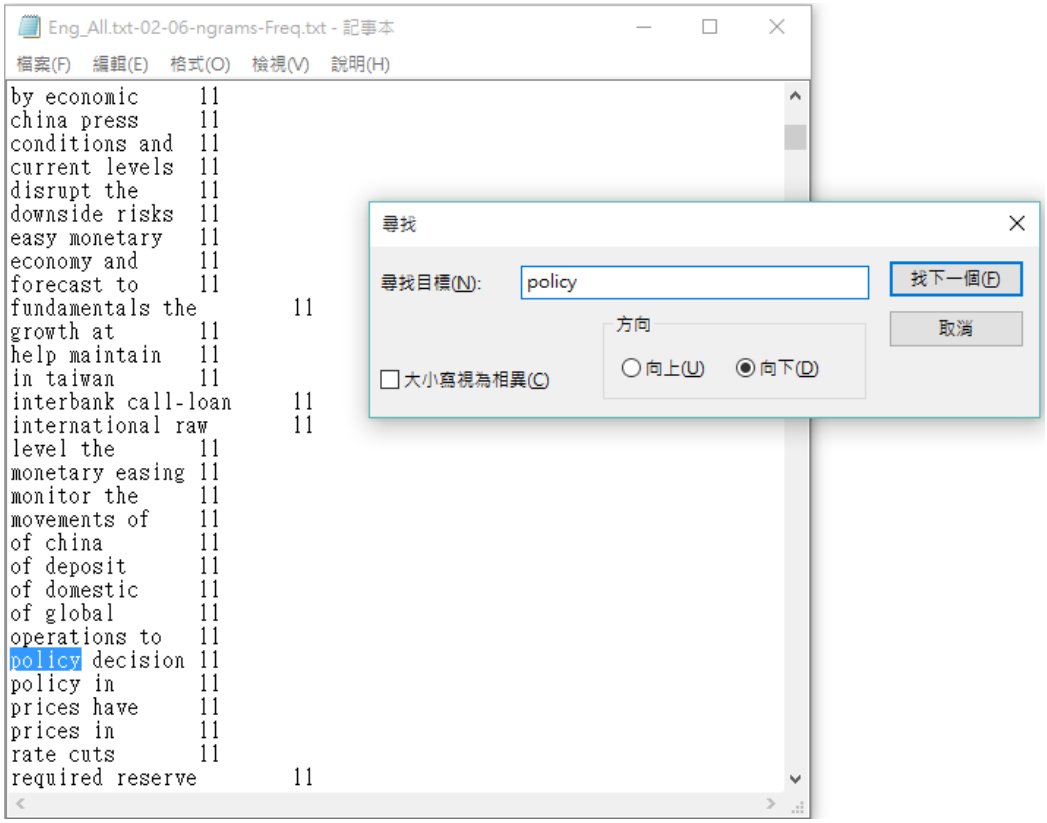

Figure 4.1. The searching process conducted in plain text files generated by *kfNgram*.

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Setting aside the amount of data, there is yet another phenomenon which decelerates the extraction work. As the text processing tool, *kfNgram*, cannot detect units of meaning but merely produce word strings according to the specified N and minimum frequency, a significant number of the output bundles appear to be incomplete structures that are hardly comprehensible out of context. It has been observed during the searching process that more often than not, a collocation or lexical bundle and even specialized terms consisting of more than two words can only be extracted through the examination of several similar but un-identical strings. As shown in the group of Figures 4.2-4.4 below, for example, the collocation of "rate + remain + complement" is eventually revealed after the review of "rates remained," "rates remained broadly," and "rates remained broadly stable," not to mention the extra entries which are produced due to different tenses of the verb, remain, and the countability of the keyword, rate.

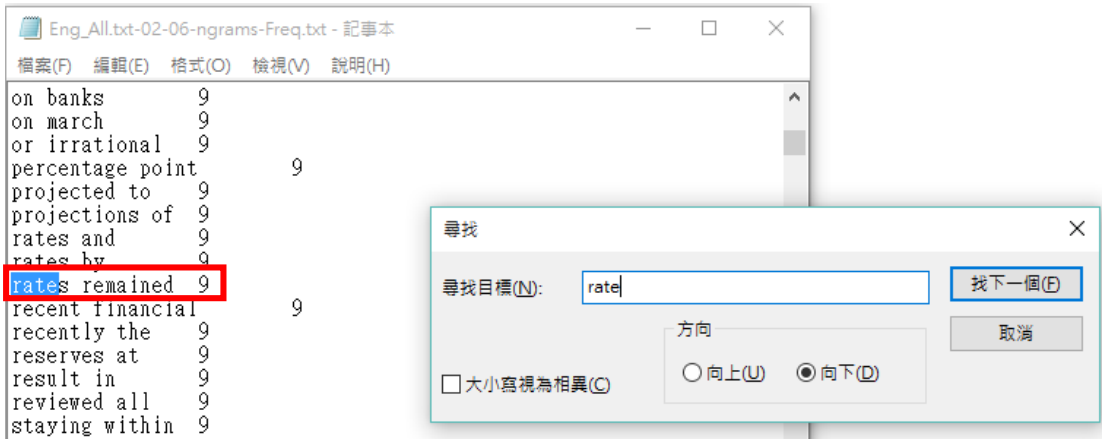

Figure 4.2. Redundant entries encountered in the searching process (1).

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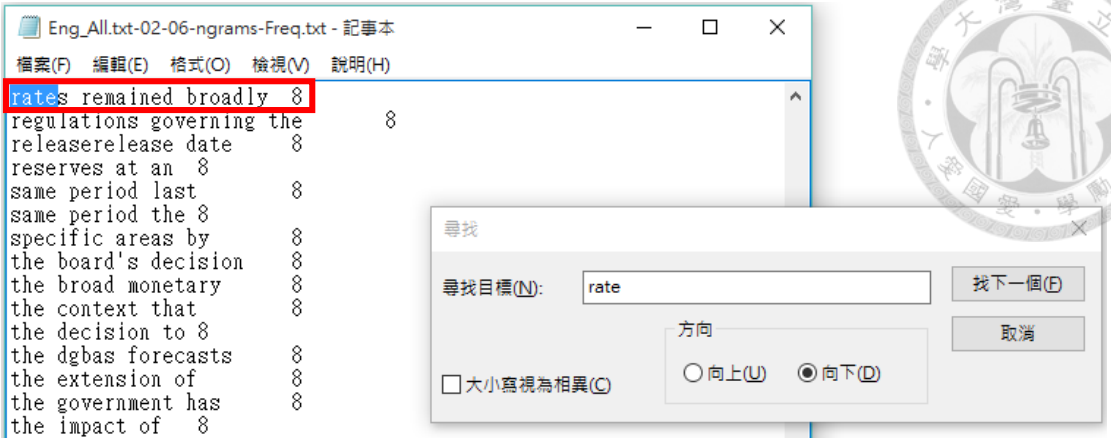

Figure 4.3. Redundant entries encountered in the searching process (2).

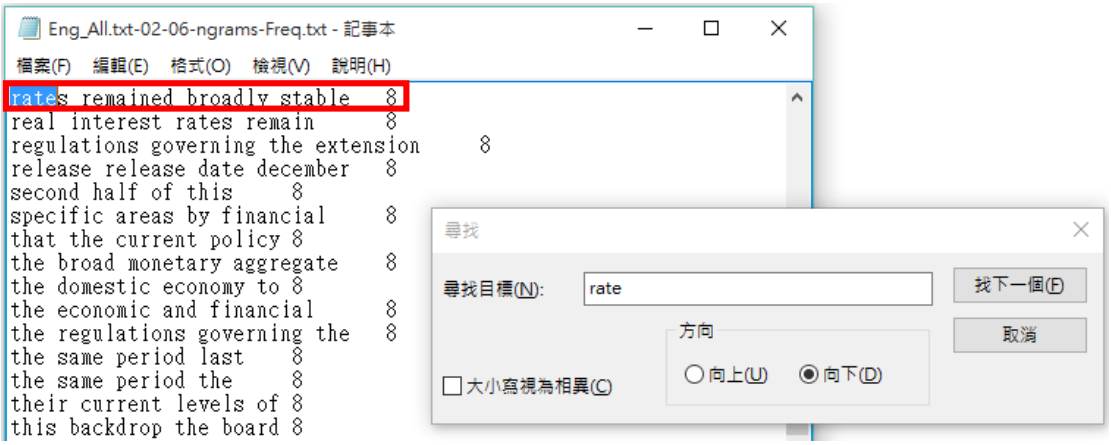

Figure 4.4. Redundant entries encountered in the searching process (3).

Despite the inconvenience and time delay caused by the redundancy of the CBC list of clusters, the extraction of reference materials proved to be a lot more efficient in that the comparable corpora contain far fewer strings, and only relevant usages are selected.

The following three sections presents the extraction results in the three categories of *specialized term*, *collocation*, and *lexical bundle*.

4.3.1 Specialized terms. In the category of financial and economic *specialized term*, a total number of 32 terms have been selected and included into the translation resource along with 38 reference terms, 17, 9, and 12 from the FOMC, the BoE, and the ECB corpus respectively. The reference terms do not share the exact same relation

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with their correspondent CBC English entries, but they are expected to assist translation work or even help expand translators' financial and economic knowledge in varying ways. For example, in the CBC entry of "unemployment rate," the recurrently-used "jobless rate" in the American corpus provides an alternative usage, while another reference usage, "labor force participation rate," familiarize translators with a prevalent specialized term in the labor market despite its semantic divergence from the original entry. In the meantime, the British and the European corpora also offer three related terms, "labour market participation rate," "16+ unemployment," and "youth unemployment" for translators' reference. Take the CBC's "overnight interbank call loan rate" (金融業隔夜拆款利率) as a further example. In addition to "federal funds rate[38]," which is the rate at which depository institutions lend reserve balances to other institutions overnight, another reference term listed alongside the CBC usage is "London Interbank Offered Rate" (LIBOR), which is used in all three comparable corpora. The reason lies in the fact that just like Taiwan's overnight call loan rate, LIBOR is also a rate at which banks charge one another interests for short-term loans. The difference, however, is that active users of LIBOR are mostly the world's leading banks, which makes it one of the most influential benchmark interest rate all over the world (Chen, 2013). The association of LIBOR with "overnight interbank call loan rate" allows translators a chance to explore an extremely important concept in the global financial community and urges them to make sense of the new term by resorting to their original understanding of the CBC entry. To avoid misunderstanding, reference usages which are divergent from the correspondent CBC translations in meaning are followed by an asterisk (*), such as core CPI inflation rate and headline inflation*. Reference usages which are the same as or similar to the correspondent translations are not marked

[38] See Section 2.2.2.

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with any symbol, such as rate + edge up/down and rate + tick up/down. The asterisk symbol is used in all three categories of *specialized term*, *collocation*, as well as *lexical bundle*.

Despite the classification criterion that only terms whose definitions have been established on *Investopedia* should be selected, three terms that fail to qualify are still included as they are fixed usages in Taiwan's monetary releases. The three terms are "rate on accommodations with collateral," "rate on accommodations without collateral," and "remunerative rate." The rate on accommodations with collateral (擔保放款融通利率) is the rate at which the CBC charges interests from commercial banks that take out loans with eligible collateral from the central bank (no more than 360 days), while in contrast, the rate on accommodations without collateral (短期融通利率) is a higher rate at which the CBC charges commercial banks that borrow without any collateral (no more than ten days) (Huang, 2015). Nevertheless, just because these two terms might be unheard-of in English does not mean that foreign central banks do not have similar lending mechanisms. As mentioned in Section 2.2.4, for example, the Governing Council of the ECB also sets the rates on MROs and on the marginal lending facility, which can roughly be analogous to the CBC's rates on accommodations with and without collateral respectively. By observing how the similar lending operations of the CBC and the ECB are rendered differently into the English language, translators can obtain a better idea of how to make their own translations more idiomatic.

As for the remunerative rate (準備金利率), the CBC requires that every bank should maintain a certain amount of reserves, which is not a unique regulation, but in Taiwan, banks are also required to deposit a certain percentage of their reserves in the central bank, with a percentage being non-withdrawable. Since banks' freedom of fund management is limited, the CBC pays these institutional depositors interests at a

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certain rate to compensate for their possible loss, which is exactly the remunerative rate (Chen). The ECB has a similar mechanism, but the rate defining the interest that banks receive for depositing with the central bank is simply called the "deposit facility rate" or the "rata on the deposit facility." Besides, when used outside of the CBC context, a "remunerative rate" often refers to the percentage of return on an investment, i.e., the rate at which the capital is remunerated. Therefore, translators can again avoid unidiomatic translation output by comparing the usages by the Taiwanese and the European central banks.

The above-mentioned "rate on accommodations with/without collateral" and "remunerative rate" may indeed sound strange in English, but as important rates which are regularly discussed and adjusted on the CBC's board meetings, they are some of the crucial terms translators need to know in order to handle Taiwan's monetary policy releases or related texts. Hence, the three terms are still included into the resource as exceptions, but it is also hoped that translators can discern the difference between the CBC's usages and correspondent reference materials to refine their translation output.

Figure 4.5 below demonstrates the layout of this category, while Table 4.3 on pages 63-65 presents the complete collection of specialized terms.

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A	B	C	D	E	F
Keyword	**CBC English Translation**	**Chinese Original**	**FOMC Reference**	**BoE Reference**	**ECB Reference**
rate	core CPI inflation rate	核心CPI增	headline inflation*	headline CPI inflation*	HICP (Harmonised Index of Consumer Prices) inflation
	capacity utilization rate	設備利用率	rate of resource utilization/factory operating rate		
	rate on accommodations with collateral	擔保放款融通利率		the Bank Rate	rate on the main refinancing operations (MRO)
	rate on accommodations without collateral	短期融通利率			rate on the marginal lending facility
	remunerative rate	準備金利率			rate on the deposit facility
	overnight (interbank) call loan rate	金融業隔夜拆款利率	London Interbank Offered Rate (LIBOR)	LIBOR	LIBOR

Figure 4.5. The layout of the category of *specialized term*.

Table 4.3

Complete Collection of Specialized Terms

CBC Translation	Chinese	FOMC	BoE	ECB
exchange rate	匯率			
effective exchange rate index	有效匯率指數		effective exchange rate	
			effective interest rate	
discount rate	重貼現率			
unemployment rate	失業率	labor force participation rate*	16+ unemployment	youth unemployment
		long-duration unemployment	labour market participation rate*	labour market participation rate*
		civilian unemployment rate		
		jobless rate		
		rate of job openings		
growth rate	成長率			

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CBC Translation	Chinese	FOMC	BoE	ECB
interest rate	利率	market interest rates		market rates
(CPI) inflation rate	通膨率／消費者物價（年）增率			
core CPI inflation rate	核心 CPI 增加	headline inflation*	headline CPI inflation*	HICP (Harmonised Index of Consumer Prices) inflation
overnight (interbank) call loan rate	金融業隔夜拆款利率	London Interbank Offered Rate (LIBOR)	LIBOR	LIBOR
		federal funds rate		
capacity utilization rate	設備利用率	rate of resource utilization		
		factory operating rate		
financial market	金融市場			
remunerative rate	準備金利率			rate on the deposit facility
financial asset	金融資產			
financial stability	金融穩定			
financial institution	金融機構			
financial intermediary	金融中介			
financial asset diversification	金融資產選擇多樣化			
monetary policy	貨幣政策			
fiscal policy	財政政策			
rate on accommodations without collateral	短期融通利率			rate on the marginal lending facilities
rate on accommodations with collateral	擔保放款融通利率		the Bank Rate	rate on the main refinancing operations (MRO)
money growth	貨幣成長			
economic growth	經濟成長			

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CBC Translation	Chinese	FOMC	BoE	ECB
broad monetary aggregate M2	廣義貨幣總計數／M2	narrow monetary aggregate M1*		broad monetary aggregate M3
International Monetary Fund (IMF)	國際貨幣基金組織			
open market operations	公開市場操作	the Federal Open Market Committee (FOMC)	the Monetary Policy Committee (MPC)	the Governing Council
		the System Open Market Account (SOMA)		
Consumer Price Index (CPI)	消費者物價	Producer Price Index (PPI)*	producer input prices*	HICP
		Personal Consumption Expenditures Price Index (PCE)		
emerging market economy	新興國家／新興經濟體			
monetary aggregate	貨幣總計數			
the Central Bank of China (Taiwan) (CBC)	中華民國中央銀行	the Federal Reserve System		
excess (bank) reserves	（銀行）超額準備			
bank credit	銀行授信／資金			

4.3.2 Collocations. The extraction of collocations returns with a number of 249 CBC entries along with 257 reference usages, 102, 88, and 67 from the FOMC, the BoE, and the ECB corpus respectively. The CBC collocations are classified into six categories, including (1) keyword + V. (+ C.[39]), (2) V. + keyword (+ C.), (3) keyword + Prep. (or in the reverse order), (4) Adj. +keyword, (5) keyword + N., and (6) N. (+

[39] Complement.

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Prep.) + Keyword, with the number of results in each category being 39, 35, 4, 59, 82, and 30. Table 4.4 below presents these categories alongside examples.

Table 4.4

Six Categories of Collocations with Corresponding Examples

K.[40] + V. (+C.)	market softens	inflationary pressure persists	rate edges up/down	rate averages x%
V. + K. (+C.)	bolster growth	disrupt market	leave rate unchanged	exhibit a growth of x%
K. + P. or P. + K.	rate on (e.g., bank loans)	amid growth	growth for (e.g., the first quarter)	demand for
A. + K.	easy policy	robust growth	lackluster growth	volatile rate
K. + N.	rate hike	growth momentum	price hike	inflation outlook
N. (+P.) + K.	wage growth	import price	upward pressure on import prices	outlook for inflation

In a number of cases, such as "safeguard price stability," the collocational relations are two-fold in that the keyword, price, is combined with "stability" before this double-word phrase becomes the object of the verb, safeguard. Under such circumstances, "price stability" is classified into the category of "keyword + N.," while "safeguard price stability" is to be grouped into "V. + K." again, with the noun phrase regarded as a nominal keyword. Similar examples include "mild + inflation + expectation," "economic + activity + slow," "better-than-expected + economic + performance," "concerted + policy + efforts," etc.

As for the reference materials, they are presented alongside the CBC entries based on semantic relevance rather than formal similarity. The majority of the reference usages overlap with correspondent CBC translations in form, but there are indeed

[40] Keyword.

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exceptions like “ranges/benchmarks for economic growth” listed along with the Taiwanese central bank’s “growth target range/zone,” or “restrain/weigh on growth” listed with “growth + slow” due to the negative development of a certain economic indicator implied by both collocations.

The reference materials are intended not only to provide translators with synonymous alternatives but to allow them an opportunity to observe the use of the English language by native speakers as well. Translators can certainly find synonyms, such as “income growth” for “wage growth” and “implement + policy” for “undertake + policy actions,” but they can also learn from native language users’ word choices like “rate + dip to” instead of Taiwan’s “rate drop to,” “downward-revise + rate” but not simply “lower + rate,” “near/medium/longer term” to replace “short/long,” etc. Overall, the usages in the reference corpora tend to be more creative and diversified, which makes the CBC translations appear relatively bookish. For example, the eight adjectives, “steady,” “stable,” “elevated,” “subdued,” “constant,” “weak,” “robust,” and “solid” are frequently seen in the reference texts to modify the keyword, “rate,” while in the CBC materials, “stable” and the more straightforward “high/low” are employed in most cases to describe rate movements. Apart from the degree of language use diversity, the reference corpora contain a number of creative usages as well, such as “still-robust growth,” “wait-and-see policy,” and “less-accommodative policy,” among others, while only “robust growth,” “appropriate policy,” and “accommodative policy” can be seen in the CBC translations. In light of the above-mentioned differences in language use, the reference materials are expected to be helpful in the translation process. Tables 4.5-4.7[41] present the reference usages extracted from the FOMC, the BoE, and the ECB corpus respectively along with their correspondent CBC entries in

[41] The complete collection of collocations is appended to the end of this thesis.

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order for readers' better understanding of how the category of *collocation* may benefit translators.

Table 4.5

Selection of CBC Entries with Correspondent FOMC Reference Usages

CBC Translation	Chinese Original	FOMC Reference
rate + *remain* + C. (e.g., stable)	…率仍／維持／依舊／續呈／持續	rate + *hold* + C. (e.g., steady)
lackluster growth	…成長趨保守	*sluggish*/*subpar* growth
expansionary policy	擴張性政策	*stimulative* policy; *policy easings*
moderate growth	溫和／穩健和緩成長	*moderating*/*modest* growth
policy *stances*	政策（走向）	policy *path*/*framework*/*posture*
policy *actions*	政策	policy *instruments*
safeguard price stability	確保／維持物價穩定；防範通貨膨脹之發生	*preserve*/*foster* price stability

Table 4.6

Selection of CBC Entries with Correspondent BoE Reference Usages

CBC Translation	Chinese Original	BoE Reference
rate + *remain* + C. (e.g., stable)	…率仍／維持／依舊／續呈／持續	rate + *hold* + C. (e.g., constant at)
growth + *slow* (+ C., e.g., down to x%)	降至；降為；放緩	growth + *soften*; *restrain*/*dampen* + growth
economic *downturn/slowdown*	經濟下降；景氣下降／下滑；景氣衰退	economic *slack*
excess volatility	過度波動	*undesirable* volatility
mortgage borrower	房貸戶／借款戶	mortgage default
market *conditions*	市場情勢	market *expectations*; market *sentiment*; market *developments*
price *hike*	物價上漲	price *shocks;* price *pressure* (+ ease/wane)

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Table 4.7

Selection of CBC Entries with Correspondent ECB Reference Usages

CBC Translation	Chinese Original	ECB Reference
rate + remain + C. (e.g., *stable*)	…率仍／維持／依舊／續呈／持續	rate + remain + C. (e.g., *weak, solid, robust*)
rate *movements*	利率變動	rate *developments;* rate *constellation*
appropriate policy	妥適措施	*wait-and-see* policy
robust growth	穩健成長	*vigorous* growth
financial market *volatility*	金融市場波動大／波動加劇	financial market *turmoil*; (acute) financial market *tensions*
easy/*accommodative* policy	寬鬆貨幣政策	*non-standard* policy
feed into + general prices	傳遞效應；遞延效應	spillover effect

According to a CBC employee who accepted an interview with the author of this thesis, the Chinese monetary policy releases are translated by English professionals recruited through civil services examinations. To apply for the translating position, candidates are required to possess a master's degree in the English language, Chinese-English translation, finance, economy, or relevant fields. For those who do not major in the English language or Chinese-English translation, they are required to (1) have studied/worked in English-speaking countries for no less than seven years after 2002, or (2) have taken one of the bank's selection of English proficiency texts and met the standards, which, for example, are set at 100 for TOEFL iBT and 7.5 for IELTS (the Central Bank of China, 2012). In light of the high recruitment standards and the status of the monetary release as a government publication, the quality of the English translations is supposed to be guaranteed. Just to be on the safe side, however, check marks are added in some of the reference cells to signify that a certain CBC usage occurs in the checked comparable corpus/corpora as well. This way, translators can

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decide whether to employ an entry according to its presence in the reference texts if they wish (see Figure 4.6). Check marks are also applied in the category of *lexical bundle* but not for specialized terms, which have been verified with *Investopedia*.

Keyword+V. (+Comp.)	V.+Keyword (+Comp.)	Keyword+Prep.	Adj.+Keyword	Keyword+N.	N.(+Prep.)+Keyword	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
economy+ bottom out						逐漸回升／觸底回升	V		
economy+linger						仍……			
					world economy	全球經濟	V	V	V
economy+grow by x%						經濟成長x%	V	V	V
economy+ expand						經濟成長	V	V	V
			statutory mandate			職責／法定經營目標	V; dual mandate		
				mortgage lending		購置住宅貸款／房貸／購屋貸款	V	V	V
				mortgage borrower		房貸戶／借款戶	V	V; mortgage default	

Figure 4.6. The layout of the category of *collocation*.

The last but not least point worth to be noted is that in the process of using *BFSU Collocator* to verify manually-selected collocations, there are indeed cases which were left out because of the lack of statistical data between collocates in the files generated by *kfNgram*. For example, the adjective, “expansionary,” which was ignored in the first place due to its indirect contact with “policy” in “expansionary fiscal policy”, proves to have an MI higher than 3.0 and T-score higher than 1.65 with the keyword and therefore gets to be included as an independent entry. Similar instances include “sustainable economic growth,” “easy monetary policy,” and a couple more, but such cases are few in number. The *BFSU Collocator* does not really yield many results in its originally-intended function of double-checking the humanly-extracted information, but this computer program offers translators a platform where they can search for terms which are not included in the selection of keywords in this study. Considering the keyness cut-off point of 6.63 adopted in this research, which translates into a level of confidence as high as 99%, *BFSU Collocator* is quite likely to help users locate

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collocational usages that are not compiled in this resource.

4.3.3 Lexical bundles. The third category sees the extraction result of 26 lexical bundles frequently used by the CBC along with 39 recurrent multi-word expressions, 14, 14, and 11 from the FOMC, the BoE, and the ECB corpus respectively. Despite the highly specialized content of monetary policy releases, the extracted bundles barely contain any finance or economy-related expressions, which is probably because the economic and financial world is rarely stable enough for a certain word string to cross the thresholds of frequency and distribution. As a matter of fact, the clusters which meet the standards are mostly set expressions repetitively employed in the central banks' post-meeting statements. In other words, the category of lexical bundles in this translation resource tend to represent the features of government publications rather than financial and economic texts, a text type rather than a content type.

The 26 bundles commonly seen in the CBC corpus can be further classified into two groups. The first one consists of expressions through which the board meeting provides a review of the economic conditions between the current and the previous meeting as well as an outlook for future developments. Examples include "having carefully reviewed," "all available information related to," "factors such as," "is/are expected to," "is/are projected to," etc. A distinguishing characteristic of this group of clusters is the conservative tone, which is embodied in the heavy use of structures like "be expected to," "be forecast to," "be projected to," and "be likely to." As volatility is inherent in the ever-changing economic world, and one of the main responsibilities of most central banking institutions is to maintain a country's financial stability, such unsureness is observed in the policy reports by the FOMC, the BoE, and the ECB as well. Having reviewed the examples listed here, one might wonder why the lexical bundles contain none of the selection of keywords compiled in Section 3.2.1. In fact,

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just as explained in the preceding paragraph, hardly any word strings concerning concrete economic and financial situations have passed the frequency and distribution standards. Hence, the selection of terms only acts as core search keywords from which extended lexical bundles are extracted. For example, the searches for "economic," "growth," and "inflation" all return with many hits of "economic growth/inflation is expected to…," so the repetitive three-word grammatical structure is extracted. Such a phenomenon is present in the other group of recurring expressions as well.

The second group of lexical bundles consists mainly of expressions through which the board meeting announces its decisions and possible policy measures to be taken in the future. Examples include "the board judges that," "the board believed," "the board/CBC decided to," "the board reached the following decisions," "the CBC will step in," and so on. In the comparable corpora, multi-word units intended for similar purposes are also recurrently encountered, for example, "the Committee is maintaining its policy of," "the Committee seeks to," and "this assessment will take into account," by the FOMC, "the MPC judged that," "voted in favour of," and "the committee voted unanimously," by the BoE, as well as "the governing council expects," "the governing council has decided," and "considerations underlying these decisions" by the ECB. The features shared by the English translations and the reference usages in this group of expressions are the formal word choices and the use of institutions as sentence subjects, CBC or the board in the case of Taiwan and, in contrast, the Committee in the U.S. and the British (the MPC sometimes) scenarios as well as the Governing Council in the ECB statements. It can be inferred based on the recurrence of such bundles that they are fixed usages that have been established in the four central banks' policy announcements. As all the banks have their respective writing patterns, and government publications tend to follow standard templates, this category might not be

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as helpful as the collection of collocations to translators working on the official monetary policy releases of a certain country. Yet for financial and economic texts of a high register, the extracted lexical bundles can still function as certified reference materials. Table 4.8 presents the complete collection of lexical bundles. The part of the table on the following page is composed of bundles belonging to the first group of expressions, while the part on the second next page summarizes the second group.

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Table 4.8

Complete Collection of Lexical Bundles

Lexical Bundle	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
having carefully reviewed	經審慎觀察；評估	information reviewed at this meeting suggested		a cross-check of the outcome indicates
against the backdrop of	由於／鑑於；在……情況下	since the most recent regular meeting	against the/that backdrop	taking into account all the information
		forecast prepared for this meeting suggested		
in the context that	鑑於	in the/a context of	in the context of	in this context
all available information related to	無直接對應	information received since	broadly in line with	considerations underlying these decisions
economic and financial developments	金融情勢之發展／變化	V	given the likely persistence of	financial and economic developments
rate(s) for the + a period of time	某段時間的…率	V	V	V
the/a growth rate of	成長率 x%	V	V	V
factors such as	（等）因素		a range of views among	
be expected to	展望／預估／可望	V	V; an expectation, not a promise	V
be forecast to	預測／預估	V	V	V
be projected to	預測／預估／預期／可望	V	V	V
be likely to	預期／可望／可能／有…之風險	V	V	
the CBC has continued to	本行持續……		the committee continued to	

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Lexical Bundle	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
at the meeting today	本日			at today's meeting
the board judges(d) that	本行理事會認為	in determining how long to	the MPC judged that	
the board believes	本行理事會認為	the Committee expects that,		the governing council expects
the board/CBC decided to	無直接對應	the Committee is maintaining its policy	voted in favour of	the governing council has decided
the board reached the following decisions	本行理事會決議		the committee's best collective judgment	
with unanimous approval	一致決議			
the board decided unanimously to	一致決議		the committee voted unanimously	
the CBC will step in	加以；進場調節	the Committee seeks to		
the CBC will continue to	（未來）央行／本行將	the Committee will assess		
		this assessment will take into account		
as deemed appropriate	適度	with appropriate policy accommodation	that it was appropriate to	
to ensure that	為……、使……	in order to ensure	to return inflation to	will continue to ensure
the main considerations behind the	主要考量因素			considerations underlying these decisions
to maintain price stability	為維持物價穩定、為穩定物價	toward maximum employment and price stability	to sustain growth and employment	to maintain price stability

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4.3.4 Paragraph and sentence-aligned bilingual texts. The sentence and paragraph-aligned bilingual texts are integrated into the translation resource with an aim to allow translators to access text information above the word/multi-word levels and examine the materials from a broader angle. For example, when encountered with the collocation "coordinated policy effort," next to which the Chinese column says "無直接對應翻譯," translators can refer to the collection of sentence-aligned texts and find "[t]hese *coordinated policy efforts* will take effects in due course and bring economic growth back on track" along with its Chinese original, "預期將共同發揮成效，促進經濟成長" (the Central Bank of China, 2008, para. 5). In search of what "these coordinated policy efforts" refer to, they can move a step further and consult the paragraph-aligned materials, where they will acquire a larger context through the following bilingual passages from the same release issued in 2008:

> "The Board believes that a sound *policy mix* is required to effectively stimulate the economy. The CBC has been consistently creating *an easy monetary environment*. The government has also adopted an *expansionary fiscal policy* and actively implemented *stimulus programs*. These *coordinated policy efforts* will take effects in due course and bring economic growth back on track."
>
> "本行理事會認為，為有效激勵國內景氣，亟須各種政策工具之搭配，除本行持續營造寬鬆之貨幣環境外，近來政府積極採取擴張性財政政策，陸續推動各項振興經濟措施，預期將共同發揮成效，促進經濟成長" (para. 5).

Not only does the paragraph-aligned version carries the information that the coordinated efforts refer to an easy monetary environment, an expansionary fiscal policy, as well as stimulus programs, it can also educate translators on how texts written in one language are not supposed to be rendered directly into another.

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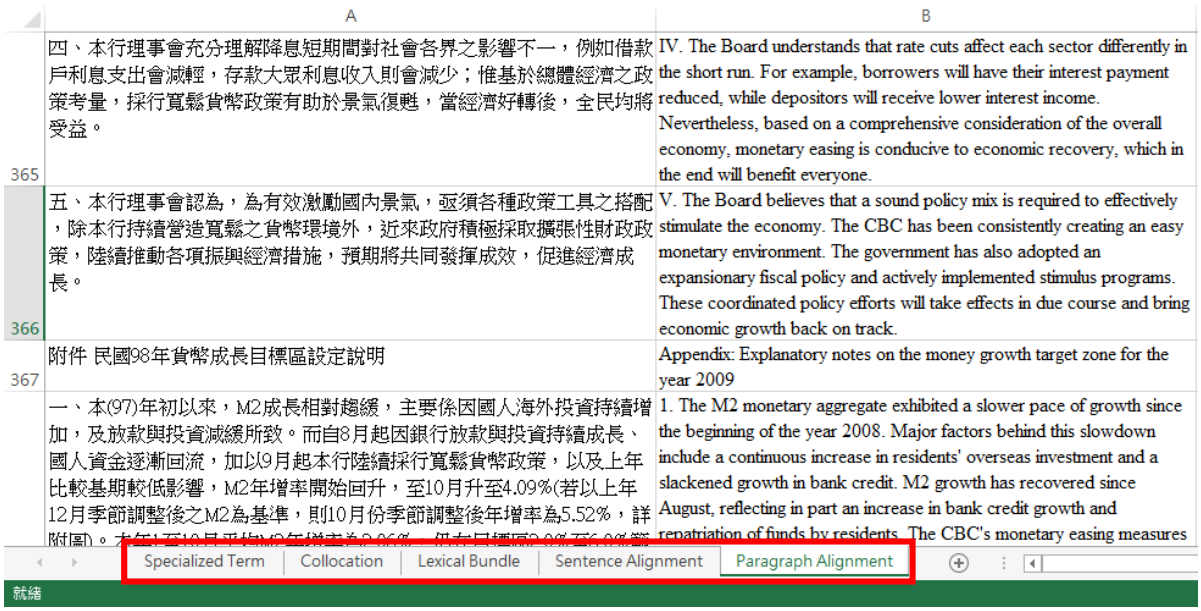
For users' convenience, all the materials in this final translation resource are presented in a single excel file on five different pages which contain the collections of specialized terms, collocations, lexical bundles, aligned sentences, and paragraph-aligned texts respectively, as shown in Figure 4.7 below.



	A	B
365	四、本行理事會充分理解降息短期間對社會各界之影響不一，例如借款戶利息支出會減輕，存款大眾利息收入則會減少；惟基於總體經濟之政策考量，採行寬鬆貨幣政策有助於景氣復甦，當經濟好轉後，全民均將受益。	IV. The Board understands that rate cuts affect each sector differently in the short run. For example, borrowers will have their interest payment reduced, while depositors will receive lower interest income. Nevertheless, based on a comprehensive consideration of the overall economy, monetary easing is conducive to economic recovery, which in the end will benefit everyone.
366	五、本行理事會認為，為有效激勵國內景氣，亟須各種政策工具之搭配，除本行持續營造寬鬆之貨幣環境外，近來政府積極採取擴張性財政政策，陸續推動各項振興經濟措施，預期將共同發揮成效，促進經濟成長。	V. The Board believes that a sound policy mix is required to effectively stimulate the economy. The CBC has been consistently creating an easy monetary environment. The government has also adopted an expansionary fiscal policy and actively implemented stimulus programs. These coordinated policy efforts will take effects in due course and bring economic growth back on track.
367	附件 民國98年貨幣成長目標區設定說明	Appendix: Explanatory notes on the money growth target zone for the year 2009
	一、本(97)年初以來，M2成長相對趨緩，主要係因國人海外投資持續增加，及放款與投資減緩所致。而自8月起因銀行放款與投資持續成長、國人資金逐漸回流，加以9月起本行陸續採行寬鬆貨幣政策，以及上年比較基期較低影響，M2年增率開始回升，至10月升至4.09%(若以上年12月季節調整後之M2為基準，則10月份季節調整後年增率為5.52%，詳附圖)。	1. The M2 monetary aggregate exhibited a slower pace of growth since the beginning of the year 2008. Major factors behind this slowdown include a continuous increase in residents' overseas investment and a slackened growth in bank credit. M2 growth has recovered since August, reflecting in part an increase in bank credit growth and repatriation of funds by residents. The CBC's monetary easing measures

Figure 4.7. The user-friendly layout of the final translation resource[42], which incorporates text information from the vocabulary to the discourse level. Shown in the figure is the page of paragraph-aligned bilingual materials.

Yet of course, translators can choose for *CUC_ParaConc* (see Figure 3.10) to present the sentence and paragraph-aligned bilingual materials to enjoy the clear design of the layout as well as the setting options of the program. As such, *CUC_ParaConc* can be seen as a complementary tool with which users can retrieve desired information apart from exploiting the main translation resource.

[42] Due to the bulk of sentence and paragraph-aligned texts, these two categories of materials are not appended to this research in the printed form. Should anyone be interested in acquiring the aligned bilingual monetary releases, please contact the author at r03147002@ntu.edu.tw.

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4.4 Supplementary Materials

Despite the comprehensiveness of the translation resource compiled in this research and the repetitiveness of monetary policy releases, there is no guarantee that there will not be any new Chinese original texts to be translated in the future. Besides, this resource may be employed to translate not only official monetary releases but other high-register texts of economic and financial contents as well. As a result, the three comparable corpora are appended to this research as supplementary materials[43] for reference. Translators who are encountered with Chinese texts which they are unable to translate are suggested to resort to machine translation and revise the machine output by comparing it with the FOMC, the BoE, and the ECB materials. In addition to modifying the output on the discourse level by observing the overall structures of reference articles, translators can also process the three corpora with the text analysis tools introduced in this research and extract more detailed information such as specialized terms, collocations, and lexical bundles, thereby examining and correcting the results generated by translating machines. Apart from the above-mentioned method, translators can also input the English comparable materials into translating machines to acquire an intermediary Chinese TM. It is conceivable that this TM would have quality issues due to the limitations of machine translation. However, translators can compare the Chinese original texts with the intermediary TM and find key words or terms, which they can eventually use as a channel to locate relevant English translations in the comparable corpora.

Apart from the possible appearance of Chinese texts which have never been translated before, a significant amount of useful information which exists in the three

[43] Due to the bulk of texts and the fact that the corpora have to be stored in the electronic form so as to be processed, the reference materials are not appended to this research in the printed form. Should anyone be interested in acquiring the comparable corpora, please contact the author at r03147002@ntu.edu.tw.

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comparable corpora is not included into the final resource because this research is centered on the Chinese-English translation of the CBC's monetary releases. For example, both the BoE and the ECB determine not only the key rate(s) but also their respective amounts of funds that shall be spent on asset purchasing, a mechanism of quantitative easing adopted in response to the 2008 financial crisis. Yet due to the fact that the Taiwanese central bank has not been implementing any asset purchasing program other than ordinary open market operations, usages related to the purchase of assets are not extracted from the BoE or the ECB corpora, which is truly a pity. Hence, if translators would like to look for usages which have been left out of the resource because of their irrelevance to the compiled CBC entries, they are suggested to start from a few economic and financial keywords which exist in two or all of the comparable corpora but not the CBC parallel corpus (see Table 4.9).

Table 4.9

Keywords Existing in Comparable Corpora but Absent in CBC Corpus

Economic & Financial Keywords Absent in CBC Corpus but Occur in Two or Three Comparable Corpora (Keyness ≥ 6.63)		
securities	spread	maturity
spending	treasury	deficit
swap	yields	purchase

Out of the keywords listed in Table 4.9, "yields" and "maturity" are related to bonds, "swap" and "spread" are reminiscent of the interest rate swap, and the word, "securities," are largely employed in discussions about financial markets. Yet none of these five terms are keywords with keyness scores higher than 6.63 in the CBC corpus, and the precious information on financial instruments such as bonds and interest rate swaps has therefore been left out. As a result, translators can combine Table 4.9 with *BFSU Collocator* or *kfNgram* to extract collocations or lexical bundles from the three

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reference corpora. If they have a specific concept in mind to translate, they may also generate the keyword list of any of the comparable corpora using *AntConc* and search for words related to that concept before running *BFSU Collocator* or *kfNgram* to acquire usages of the words, thereby creating a proper translation.

In other words, users can not only take advantage of the constructed translation resource but also obtain hands-on experience with computer-aided text processing, which indeed fulfills the objectives of this research.

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Chapter 5. Conclusion

This chapter presents an overall evaluation of this study based on the research objectives, a review of research limitations, as well as suggestions for future research.

5.1 Overall Evaluation Based on Research Objectives

The two objectives set at the beginning of this research are as follows:

(1) To produce a comprehensive translation resource which encompasses paragraph and sentence-aligned bilingual texts, lexical bundles, collocations, as well as specialized terms, thus facilitating the translation process by allowing translators to observe language features from the vocabulary to the context level.

(2) To provide an inexpensive and accessible approach for individual translators to create their own resources, thereby drawing attention to the advantages of corpora use as well as the importance of the ability to make smart use of computer tools to suit their needs in translation work.

The first goal is, as reviewed in the chapter of results and discussions, achieved with 32 financial and economic terms, 249 collocations, and 26 lexical bundles compiled along with 133, 111, and 90 reference usages extracted from the FOMC, the BoE, and the ECB comparable corpus respectively. In addition, 3,419/842 bilingually aligned sentences/paragraphs are included as well (see Table 5.1).

Table 5.1

Result Summary

	Specialized Terms	**Collocations**	**Lexical Bundles**	**Total**	**Aligned Sentences/Paragraphs**
CBC	32	249	26	306	3,419/842
FOMC	17	102	14	133	-
BoE	9	88	14	111	-
ECB	12	67	11	90	-

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The category of *specialized term* helps translators make sure that specialized economic and financial content is rendered correctly into English, the categories of *collocation* and *lexical bundle* enhance translators' phraseological knowledge and help produce idiomatic target texts, while the categories of sentence and paragraph-aligned bilingual texts provide further conceptual and structural information. In addition, due to the difference between American English and British English, reference usages which are compiled from the FOMC corpus can be compared with those from the BoE and ECB corpora and assist translators in localizing texts which are intended for different audiences.

Regarding the second objective, the method of corpus construction, text processing, and resource extraction are all explained in great detail with a number of figures and tables for a clear illustration. The methodology adopted in this research involves the use of a series of text analysis tools, including *AntConc*, *kfNgram*, *BFSU Collocator*, *CUC_ParaConc*, *LF Aligner*, as well as *Notepad++*. As mentioned in Section 4.4, in addition, the three comparable corpora are appended for users to process with computer programs and extract idiomatic usages therefrom when they are faced with texts that have never been translated. Nevertheless, what is even more important and pertinent to the second objective is that this corpus-based approach may serve as a model to encourage individual translators to develop their own ad-hoc corpora containing texts of different fields or types and extract translation resources using the introduced freeware, better yet other programs that they find and explore by themselves.

5.2 Research Limitations

This research is met with four major limitations. First, the parallel corpus, though containing all available bilingual monetary policy releases issued by the Taiwanese central bank, is still insufficient in size for a corpus-based study with its

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56,732 characters and 39,296 words; it is also relatively small compared to the FOMC, the BoE, and ECB comparable corpus, which consists of 1,021,621, 482,393, and 299,794 words respectively. Due to such a discrepancy in size, in addition, the frequency standard of 40 times per million words for lexical bundles, which works properly for the American, the British, and the European collections of texts, turns out to be as low as two for the CBC corpus and causes the generation of more than 20,000 bundles to be reviewed (cf. 1,0999, 9,898, and 13,277 bundles for its U.S., British, and European counterparts). The enormous number of word strings requires significant time and effort during the resource extraction process and thus affects the overall research progress. Also affected by the small size of the parallel corpus are the research results, where the categories of *specialized term* and *lexical bundle* merely see the compilation of 32 and 26 entries as well as 38 and 39 reference usages respectively (see Table 5.1). In other words, the focus on the Chinese-English translation of the CBC's releases has led to the results which are somehow disproportionate to the three large-sized comparable corpora.

Second, the Brown Corpus, which is used as the reference corpus for *AntConc* to generate keyword lists, is slightly outdated as it was compiled from 1964 to 1979, and its 100-million-word size is also somewhat insufficient. In theory, it is optimal to make use of a larger-size corpus which have been constructed in more recent years because uses of the English language might have changed in the past 40 years. The famous Corpus of Contemporary American English[44] (COCA), which contains 520 million words collected starting from 1990 and is still expanding (Davies, 2008-), is an

[44] A comparison of the keyword lists generated with the Brown Corpus and those with the COCA, whose complete word frequency list the author acquired from a fellow researcher, indicates that the differences are negligible. Such a finding may have resulted from the outstanding textual features of monetary policy releases.

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ideal choice, but only the frequency list of its top 5,000 words is available for free downloading, which suits the objective of providing an inexpensive method of resource creation. Compared to the free COCA list of 5,000 lemmas, the 41,506 token types in the complete word frequency list of the Brown Corpus is more representative and therefore preferred in this study.

Third, due to insufficient planning, all the monetary releases by a central bank are stored in merely one file, instead of one release in one file. In fact, when in need to examine whether a word string meets a set distribution threshold, one can use the clusters/N-Grams tool of *AntConc* by setting the minimum range at the lowest number of files where a string has to occur if each file accommodates only one text, as shown in Figure 5.1 below.

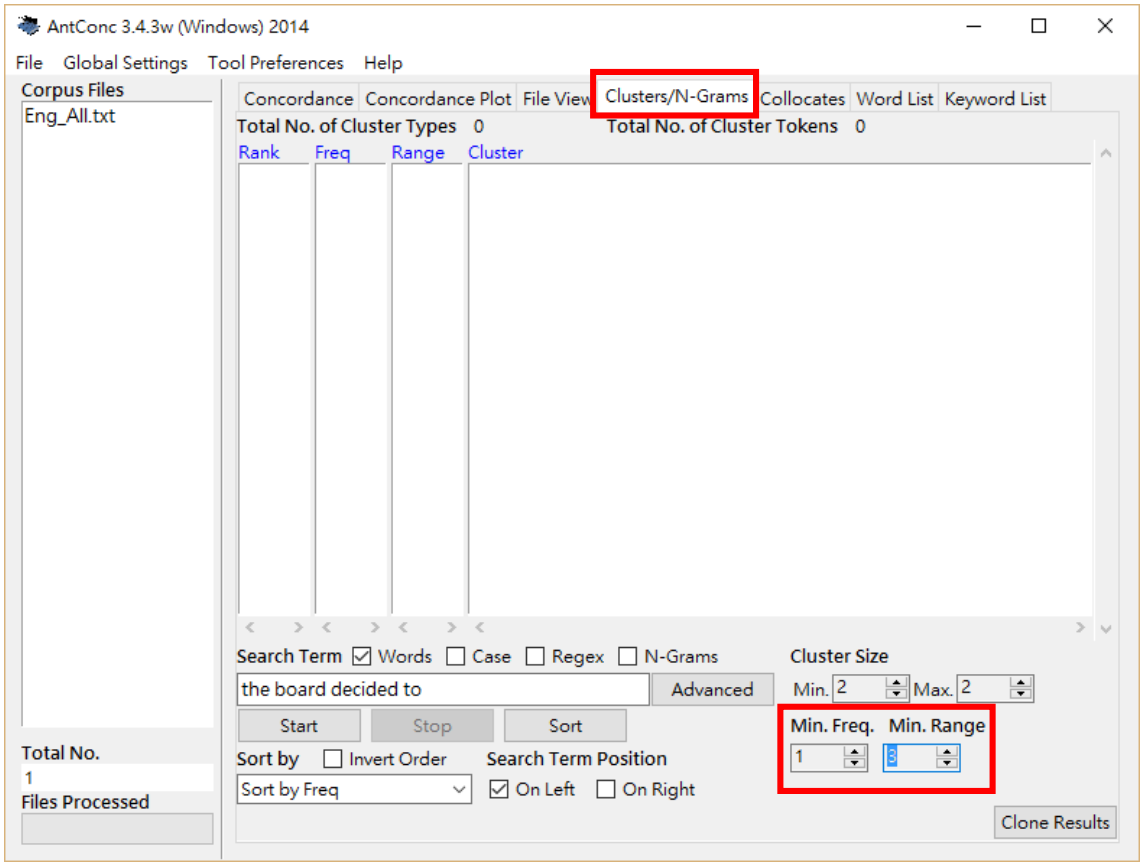

Figure 5.1 The clusters/N-Grams tool of *AntConc*, where users can set the distribution and frequency standards for word strings.

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However, the recurrent strings in this research could only be verified using the concordance plot tool of *AntConc* (see Figure 3.4), which does offer a solution but is more time-consuming and not accurate enough. This step of verification also underlines the fact that the majority of work needed to create the final resource still requires human effort, which can be seen in the selection of keywords, the extraction of relevant usages, and the alignment of bilingual sentences. Even with the help of an array of text-processing tools, the procedure executed in this study remains to be semi-automatic only and entails a great amount of human work. For a professional translator who needs to earn a living by providing language services, commercial translation tools are still indispensable.

The last limitation results from the lack of time and resources available for this study. In the process of eliminating keywords, the keyness cut-off point was originally set at 3.84, which indicates a significant level of 0.05, but the subsequent resource extraction work proved to be excessively time-consuming and inefficient as too many keywords remained to be searched for, and the search results often overlapped. For example, "monetary policy" were returned in the searches for both the keywords, "monetary" and "policy," likewise such phrases as "financial stability" and "growth rate." The cut-off standard was hence raised to 6.63, which makes the resource compilation executable but also excludes a number of key terms and usages. To minimize the limitation caused by this disadvantage, translators are suggested to use the resource with *BFSU Collocator* as an aid.

5.3 Suggestions for Future Research

In light of the limitations listed in Section 5.2, future researchers are encouraged to establish larger corpora for the purpose of resource creation. In the field of Chinese-English monetary releases, the People's Bank of China (中國人民銀行) and the Hong

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Kong Monetary Authority (香港金融管理局) both offer bilingual materials, which are potential subjects of study, and the monetary releases to be issued by the Taiwanese central bank after each quarterly meeting can certainly be exploited. As for English reference materials, the monetary policy reports by the Bank of Canada, the Reserve Bank of Australia, and the Reserve Bank of New Zealand are all available on their official websites to be studied.

Researchers are also encouraged to apply the text processing procedure to materials in other specialized fields, such as law, medicine, science and technology, etc., but it goes without saying that the combination of the computer programs can be re-arranged, new tools can be integrated, and analyzing steps can be freely modified to suit different research objectives. The only point which has to be noted is that should a study involve the extraction of lexical bundles, each document has to be stored in an independent file so that the distribution range of a certain string can be calculated accurately.

Last but not lease, due to the research goal of compiling a translation resource containing reference usages in order to help translators produce idiomatic English output, useful specialized terms, collocations, and lexical bundles which exist in the three comparable corpora but are not related to the selected CBC English entries are rejected from the final resource to avoid shifting the focus. In fact, there is a large amount of precious information regarding economic and financial concepts as well as the writing of English monetary policy reports which future researchers are suggested to explore. Should research goals allow, the differences among the uses of the English language by the FOMC, the BoE, and the ECB in monetary policy statements are also a topic worth further attention.

This research is conceived as a project to provide individual translators an

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inexpensive alternative to commercial translation packages and inspire them to develop their own resources using corpus-based approaches. It is hoped that through this study, where an actual demonstration has been staged, the benefits of corpus use as well as computer-aided text processing will be appreciated and accepted by more translators, thereby really achieving the function of improving the quality of translation output.

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Appendix: Complete Collection of Collocations

K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
rate	rate+ average+x%						…率平均為	V	V	V
	rate+remain+ Comp., e.g., stable						仍；維持； 依舊；續呈； 持續	V; rate+remain+ elevated/ subdued*; rate+hold +steady	V; rate+ hold/remain +constant at	V; rate+remain+ robust/ weak/solid*
	rate+ decline/drop						下降；滑落； 下跌；下滑	V; rate+dip to	V; rate+ fall/decrease	V
	rate+rise						成長；升	V; rate+jump	V; rate+follow (a path)	V
	rate+edge up/down						逐漸上升； 緩步下降	V; rate+tick up/down; rate+edge higher/lower	V	V
	rate+trend up(wards)/ down(wards)						走高／上揚／ 走升／上升； 下降	V		V

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
	rate+return to+Comp., e.g., positive territory						回復至／轉呈／回歸			
		lower+rate (+Comp., e.g., to x%)					調降	V; downward-revise+rate	V; cut+rate	V
		leave+rate+ Comp., e.g., unchanged					不予調整；維持	V; keep+rate+at	V; set+rate+at	V
		maintain+rate (+Comp., e.g., at x%)					維持	V	V	V
					rate decision		利率政策	V	V	V
					rate level		政策利率			V
					rate cut		降息／利率下降／調降利率	V	V	V
				continuous rate cuts			持續降息／利率下降／調降利率			

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
					rate hold		維持政策 利率不變			
					rate hikes		調升政策利率			
					rate movements		利率變動	V	V	V; rate development; rate constellation
					rate changes		利率變動風險	V		V
					rate spread		利率差距	V	V; interest rate differentials	
					exchange rate regime		匯率制度	V		
						policy rate	（政策）利率	V; rate target; intended rate	V; bank rate	rate method
			rate+on +Comp., e.g. bank loans				某項利率	V	V	V, e.g., rate+on the deposit facility

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
				annual/ year-on-year rate			年…率	V	V; one-year rate; annualised rate	V; quarter-on-quarter rate*
				volatile rate			過度波動／波動大	V	V	V
growth		revise down growth projections					下修成長預測值	V	V	V
					growth projections		成長預測值	V	V	V
					growth target range		成長目標區	V; ranges/ benchmarks for growth	V; growth prospects	growth prospects
					growth target zone		成長目標區			
					growth momentum		成長動能		V	V
						wage growth	薪資成長	V; income growth	V; pay/earnings/ income growth	V

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
						outlook for economic growth	考量經濟成長	V	V	V
						downside risks to economic growth	經濟景氣減緩；經濟成長下降風險	V	V	V
						a slowdown in growth	經濟擴張略緩	V	V	V
			rate+for+a period of time, e.g., the first quarter				某段時間的某成長數值	V	V	V
			amid+ growth				因應…；伴隨…	V	V	V
	growth+remain +Comp., e.g., stable						仍；維持…	V; growth+ continue to…	V	V; growth+ pick up*
	growth+return						轉呈	growth+ pick up to…	V	V

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
	growth+ stay at+Comp., e.g., reasonable levels						維持…	V		
	growth+slow (+Comp., e.g., down to x%)						降至／降為； 放緩	V; restrain/ weigh on+ growth	V; growth+ soften; restrain/ dampen+ growth	V; growth+ decelerate
		foster+growth					促進／協助 經濟成長	V; promote+ growth	V; sustain+ growth	V; support+ growth
		bolster+ growth					帶動成長	growth+ proceed	V	
		achieve+a growth of x%					成長為…		generate+ growth	growth+ emerge
		bring+ growth+ back on track					促進經濟成 長；促進經濟 早日復甦	resume+ growth		
		exhibit+a growth of x%					表現；呈			
				monetary growth			貨幣數量成長	V	V	V

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
		post/register +a growth of x%					呈	V	V	V
				moderate; mild growth			溫和／穩健／和緩成長；力道溫和／溫和成長	V; moderating growth; modest growth	V	
				stable; steady; sustainable growth			穩定／穩步成長；穩定／穩步／穩健成長	V	V	V; stablised growth
				sustained; continued growth			穩定成長；持續成長	V; sustainable growth	V	V; sustainable growth
				solid growth			穩步／穩定／溫和成長；溫和擴張／擴增	V	V; rapid*/firm growth	V; rapid growth*
				positive; negative growth			正成長；負成長	V	V	V

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
				robust growth			穩健成長	V; still-robust growth	V	V; vigorous growth
				stronger growth			持續上升；優於…	V; slower growth*	V; slower growth*	V; weaker than expected growth*
				limited growth			增加有限	V	V	V; subdued growth
				weak growth			成長疲弱	V	V	V; slowing growth
				lackluster growth			趨保守	V; subpar/ sluggish growth	sluggish growth	
policy				expan-sionary policy			擴張性政策	(withdraw/ remove) policy accom-modations; policy easings/ tightening*; stimulative policy	V; (withdraw/ remove) policy accom-modations; policy easings/ tightening*; stimulative policy	

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
				appropri- ate policy			妥適措施	wait-and-see policy	immediate policy	wait-and-see policy
		adopt+policy					採行政策	V; formulate+ policy	V; policy formulation	V; policy formulation
				coordi- nated/ concerted policy efforts			無直接 對應翻譯	policy strategy; policy framework; policy path	policy strategy; (establish) policy framework; policy path	policy framework; policy path
		undertake+ policy actions					採行政策	adjust+policy actions; policy intentions; policy decisions; implement+ policy	policy decisions; policy adjustments	policy initiatives/ intentions/ decisions; (adjust) policy actions; policy adjustments
					policy efforts		無直接 對應翻譯			

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K.	K.+V.(+C.)	V.+K.(+C.)	K.+P. P.+K.	A.+K.	K.+N.	N.(+P.)+K.	Chinese Original	FOMC Reference	BoE Reference	ECB Reference
				easy/ accom-modative policy			寬鬆貨幣政策	V; less-accom-modative+ policy; unconven-tional policy	V; conventional policy*	V; non-standard policy
					policy actions		政策	V; policy instrument	V	V
					policy stances		政策（走向）	V; policy moves/ posture; (employ) policy tools	V; (employ) policy tools; policy instrument; policy move	V; (employ) policy tools; policy moves
					policy divergence		立場分歧	policy normalization	normalizing policy; policy normalization	policy normalization
						food prices	食物類價格	V	V	V
price						oil prices	油價	V; gasoline prices; energy prices	V; price of Brent crude; gas prices; petrol prices	V

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						commodity prices	原物料價格／行情；大宗物資價格；商品價格	V	V	V; administered prices
						consumer prices	物價	V	V; goods prices	V
						housing prices	房價	V	V; house price	V
						retail prices	商品零售價格；零售市場售價	V	V; output prices	V
						wholesale prices	躉售物價	V	V	V
						asset price	資產價格	V; equity prices; stock prices	V; equity prices; options prices	V
						electricity price	電價	utility prices	utility prices	
						grain prices	穀物價格	V	V	V
						import prices	進口物價	V	V	V

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						upward pressure on import prices	進口物價之上漲幅度；有上漲壓力	V	V	V
						raw material prices	原物料價格／行情；大宗物資價格；商品價格		input prices	
					price conditions		物價情勢	V	V; price level	V; price competitive-ness
					price develop-ment		物價走勢	V	V; price movements	V; price dynamics
					price trends		物價情勢	V	V	V
					price stability		通膨無虞；物價穩定	V; (preserve/ foster) price (level) stability	V; upside risks to price stability	V; price stability+ prevail
				mounting food prices			食物價格上升／上揚			

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					price hikes		物價上漲	V; price inflation; price pressures	V; price shocks; price pressure (+ease/wane)	V; underlying price pressures
	prices+ denominated+ in xx dollar, e.g., NT						以（新台幣）計價之物價	V	V	V
		maintain/ safeguard+ price stability					確保／維持物價穩定；防範通貨膨脹之發生	V; foster price stability	V	V
				general prices			無直接對應翻譯			
		feed into+ general prices					傳遞效應；遞延效應			spillover effect
inflation	inflation+reach /increase to x%						通貨膨脹率為…	V	V	V
					inflation expectations		通貨膨脹預期心理／通膨預期心理	V	V	V

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		contain/ease +inflation expectations					消弭／抑制通貨膨脹預期心理			
		fuel+inflation expectations					造成通膨預期心理上升			
		forecast/ project+infla-tion to+V., e.g., reach					預測通貨膨脹…			
						outlook for inflation	通膨展望	V	V	V
					inflation risks		通膨風險	V	V	V
					inflation outlook		通膨展望	V	V	V
				mild inflation expec-tations			通膨展望溫和	V	V; inflation expectations+ fall	V
	inflation+ edge up						物價上漲略為提高			

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	inflation+ average+x%						平均通膨率為…			
				imported inflation			輸入性通膨（壓力）／輸入性物價上漲壓力			
				domestic inflation			國內通膨／國內物價	V	V	V
				global inflation			全球通膨	V	V	V
economic					economic recovery		經濟／景氣復甦	V	V	V
					economic activity		經濟活動／景氣	V	V	V
					economic expansion		景氣回溫／擴張	V	V	V
					economic conditions		經濟情勢／景氣	V; economic situation	V; economic circumstances	V
					economic develop-ments		經濟發展／景氣／經濟局勢演變	V; current/ prospective economic developments	V	V

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					economic performance		經濟表現／景氣	V	V	V
					economic funda-mentals		經濟基本面／經濟基本情勢	V	V	V
					economic outlook		經濟展望（預測）／前景	V; economic prospects/ projections	V	V
					economic uncertain-ties		經濟存在／仍具（諸多）不確定性	V	V	V
					economic downturn/ slowdown		經濟下降；景氣下降／滑；景氣衰退	V	V; economic slack	V
					economic stimulus package/ measures		振興經濟（景氣）措施			
						projections for economic growth	經濟成長預測值	V	V	V

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					economic indicators		指標／經濟數據	V; market indicators		V
		monitor+ economic conditions					觀察／注意經濟情勢變化	V	V	V
				stable/ steady; moderate economic expansion			經濟成長步調和緩／景氣和緩擴張；經濟穩定擴張	V	V	V
				better-than-expected economic perfor-mance			景氣／經濟表現較預期為佳	V	V	
	economic activity+slow						經濟活動放緩	V	V	V
		support+ economic activity					支應經濟活動	V	V	V

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market					market forces		市場供需	V	V	
				financial markets			金融市場	V	V; market yields	V; sovereign debt markets
						labor/job market	勞動市場	V	V; labour market	V; labour market
						asset markets	資產市場	V	V	V
						exchange market	外匯市場／匯市	V	V	V
						housing market	房屋市場／房市／房地產市場	V	V	V
				orderly market			外匯市場秩序			
					market soundness		健全市場			market flexibility; market rigidities
		maintain+ an orderly market					維護外匯市場秩序			

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					market conditions		市場情勢	V; market transactions/ market developments	V; market expectations/ market sentiment/ market developments	V; market tensions/ market confidence/ market expectations
					market liquidity		市場流動性／市場資金	V; money market/ funding markets/ mortgage market	V; money market/ funding markets/ capital markets	V
		disrupt+ market					干擾市場／導致市場供需失衡／干擾市場之正常運作			
	market+soften						市場情勢趨嚴峻	V	V; slack in the market	V
	market+ improve						市場情況改善	V	V	V; market+ strengthen
financial					financial front		金融方面；銀行體系		financial sector	financial sector

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					financial conditions/ environment		金融情勢／情況；金融環境	V; financial situation	V	V
					financial system		金融體系；市場	V	V	V
					financial examination		金檢			
					financial develop-ments		金融情況／情勢變化	V	V	V
		monitor financial developments					審視／觀察／注意金融情況／情勢變化	V	V	V
					financial uncertain-ties		金融（情勢）不確定性	V	V	V
					financial crisis		金融危機／風暴	V	V	V
					financial stability		金融穩定	V	V	V
					financial decision		決議			

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					financial market volatility		金融市場波動大／加劇	V; financial market imbalances	V	V; financial market turmoil; (acute) tensions
		promote/ safeguard financial stability					促進；確保金融穩定	V	V	V; contribute to financial stability
		sustain/ maintain financial stability					維持金融穩定	V	V	V
		undertake financial actions					採行貨幣政策	(remove) financial accom-modation; financial easing/ tightening		financial strategy
					financial actions		貨幣政策			

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					concerted/ coordinated financial efforts		各部會相關政策／政府相關措施			
					financial stance		政策立場		financial guidance	
					financial divergence		政策走向分歧			
					financial measures		規範			
					financial mix		政策（工具）（相互）搭配			
					financial norma-lization		貨幣政策正常化；量化寬鬆政策退場			
		fine-tune financial rates					（微調）本行各項貼現利率／（政策）利率			
					financial tools		政策工具			

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					financial rates		本行各項貼現利率／（政策）利率			
infla-tionary					inflationary pressure		通膨壓力／物價上漲壓力	V	V	V
				lower infla-tionary pressure			通膨壓力減輕／消退	V	V	V
				subdued infla-tionary pressure			通膨無虞／通膨情勢溫和／通膨壓力減輕	V	V	V
	inflationary pressure+ remain						國內物價仍有上漲壓力	V	V; above-target/eleva-ted inflation	V
	inflationary pressure+ persist						物價上漲壓力仍未消除	V	V	V
	inflationary pressure+ subside/lesson						通膨壓力減輕／消退；通膨壓力獲紓解	V	V	V

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				rising infla-tionary pressure			物價上漲壓力大	V	V	V
	inflationary pressure+ remain+Comp. , e.g., subdued						通膨無虞	V; inflation+ be+near the mandate-consistent level	V; (meet) inflation target; return inflation to the target	V; ensure a firm anchoring of inflation expectations
	inflationary pressure+ diminish						物價上漲的風險	V	V	V
monetary					monetary stance		貨幣政策；政策立場	monetary authorities/ affairs	V	monetary measures
					monetary stimulus		政策激勵／奏效	V	V	V
					monetary easing		寬鬆貨幣政策	V	V	monetary expansion/ liquidity
board					board members		理事會理事	the Board of Governors	committee members	

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term				short/ long-term			短／長期	V; near/medium/ longer-term	V; near/medium/ longer-term	V; medium/long er-term; in the near term
meeting						board meeting	理監事聯席會 議	the intermeeting period; meeting+ adjourn	monetary policy committee meeting; meeting+ take place	governing council meeting
stability				dynamic stability			動態穩定			
				macro- economic stability			總體經濟穩定	V		V
demand				domestic demand			內需	V; aggregate demand	V	V
			demand+ for+N., e.g., money, funds				貨幣需求／ 資金需求	V	V	V

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				global/ foreign/ external demand			外需	V	V	V
interest					interest payment		利息支出	V; principal and interest	V	
annual					annual rate/growth/ increase/etc.		年增	V; year-on-year	V; year-on-year	V; on an annual basis
economy	economy+ bottom out						逐漸回升／觸底回升	V		
	economy+ linger						仍……			
						world economy	全球經濟	V	V	V
	economy+ grow by x%						經濟成長 x%	V	V	V
	economy+ expand						經濟成長	V	V	V
mandate				statutory mandate			職責／法定經營目標	V; dual mandate		

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mortgage					mortgage lending		購置住宅貸款／房貸／購屋貸款	V	V	V
					mortgage borrower		房貸戶／借款戶	V	V; mortgage default	
						home mortgage	購置住宅貸款／房貸／購屋貸款	V; residential mortgage; subprime mortgage		
					mortgage loan		購置住宅貸款	V; mortgage debt	V	V
volatility				excess volatility			過度波動	disruptive volatility	undesirable volatility	
				excessive volatility			過度波動			
dollar	dollar+ appreciate						升值	V	V	
	dollar+ depreciate						貶值	V	V	
loan					loan portfolio		無直接對應翻譯	V; collateralized loan	V	

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macro-economic					macro-economic conditions		總體經濟狀況	V; macro-economic stability/ objectives	V	V; macro-economic environment/ projections/ framework
reserve					reserve requirement		準備金（制度）	V; reserve restraint	V	V
					reserve account		存款準備金乙戶			
					(required) reserve ratio		存款準備率	V	V	V
credit	extend+credit						融資	V		
point						basis point	無直接對應翻譯	V	V	V
currency				foreign currency			外幣	V	V	
decision				unanimous decision			一致決議			
						monetary policy decision	決議	V		

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employ-ment	employment +rise/increase						就業人數增加／市場改善	V; maximum employment	V	V
investment				private investment			民間投資	V	V; non-residential investment*	V
liquidity				ample liquidity			足夠資金／資金充裕	V		V
				sufficient liquidity			滿足流動性需要	adequate liquidity	liquidity requirements	liquidity situation
				excess liquidity			資金過於充裕	V		V
					liquidity shortage		流動性短缺／流動性不足	V		

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