Essays on the Spillover Effects of Federal Reserve Communications
on Selected Emerging Southeast Asian Economies

By

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CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

"*When I was at the Federal Reserve, I occasionally observed that monetary policy is 98 percent talk and only 2 percent action.*"

Ben S. Bernanke, Inaugurating a New Blog, March 30, 2015.

"*Successful monetary policy is not so much a matter of effective control of overnight interest rates... as of affecting... the evolution of market expectations... [Therefore,] transparency is valuable for the effective conduct of monetary policy... this view has become increasingly widespread among central bankers over the past decade.*"

Michael Woodford Jackson Hall 2001 Conference

The subject of this dissertation is the spillover of Federal Reserve communications on selected emerging markets, particularly in economies in Southeast Asia.

CHAPTER 1
A NATURAL LANGUAGE PROCESSING (NLP) APPROACH TO EXTRACTING MONETARY POLICY STANCE: EMERGING MARKET SPILLOVER FROM FEDERAL RESERVE COMMUNICATION

Abstract

I construct a new measure of the Federal Reserve monetary policy stance (MPS) index using natural language processing extracting information from FOMC press releases and speeches. The MPS index is used to evaluate the emerging market spillover from the Federal Reserve communication using the SVAR model.

1.1 Introduction

Over the past decade, the Federal Reserve (Fed) communication has undergone dramatic changes including the shift from a cryptic to an explicit statement on the future path of monetary policy. Even more, the importance of the Fed's communication became particularly important during the Great Financial Crisis (GFC) when many advanced economies were constrained by the zero lower bounds (ZLB).[1] The short-term interest rate is the main instrument of monetary policy in affecting the real economy. And when the ZLB is a binding constraint, the Fed's conventional policy levers such as the reduction of short-term interest rates are ineffective in stimulating the economy. In these cases, the Fed could rely on forward guidance to provide additional stimulus for the economy. Table 1 displays the usual forward guidance language used by the Federal Open Market Committee (FOMC) in its statements and speeches to manage

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[1]Zero lower bound or the effective lower bound is a situation in which short-term interest rates reach zero making further monetary easing through rate reduction impossible.

public expectations. [2]

Building on this, it was observed during the recent COVID-19 pandemic that several countries, particularly emerging markets (EM), adopted forward guidance in their policy statements, mirroring the Fed's communication strategy (Table 2). Evdokimova et al. (2023) documented this shift in EM communication strategy and reported that the use of forward guidance during the COVID-19 pandemic enabled EM to address pandemic-related demand shocks and avoid potential recession promptly.

Table 1.1: Summary of Forward Guidance FOMC Statement Language

Date	Economic Conditions Growth	Inflation	FOMC Statement Policy Guidance
August 2011	"considerably slower"	"picked up"	"low levels warranted at least through mid 2013"
January 2012	"expanding moderately"	"at or below mandate"	"low levels warranted at least through late 2014"
September 2012	"moderate pace"	"subdued"	"until after the recovery strengthens... at least through mid 2015"

Source: Del Negro et al. (2012).

Table 1.2: Forward Guidance Language of Selected EM During COVID-19

Date	Country	Statement
11/06/2020	Peru	The Board considers it appropriate to maintain a strong expansionary monetary stance for an extended period and while the negative effects of the pandemic on inflation and its determinants persist.

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[2]The Federal Open Market Committee (FOMC) consists of twelve members -the seven members of the Board of Governors of the Federal Reserve System; the president of the Federal Reserve Bank of New York; and four of the remaining eleven Reserve Bank presidents, who serve one-year terms on a rotating basis. The FOMC holds eight regularly scheduled meetings per year. At these meetings, the Committee reviews economic and financial conditions and determines the appropriate stance of monetary policy.

Date	Country	Statement
06/23/2020	Hungary	The Council continues to consider the government securities purchase program as a safety net, which it intends to use in case of necessary and to the extent necessary.
6/19/2020	Russia	If the situation develops in line with the baseline forecast, the Bank of Russia will consider the necessity of further key rate reduction at its upcoming meetings.
05/21/2020	South Africa	The implied path of policy rates over the forecast period generated by the Quarterly Projection Model indicates two repo rate cuts of 25 basis points in the next two quarters of 2020. As usual, the repo rate projection from the QPM remains a broad policy guide, changing from meeting to meeting in response to new data and risks.
06/25/2020	Turkey	Keeping the disinflation process in track with the targeted path requires the continuation of a cautious monetary stance.
6/16/2020	Brazil	The Copom believes that the current state of affairs continues to recommend an unusually strong monetary stimulus, but it recognizes that the remaining space for monetary policy stimulus is uncertain and should be small.
5/22/2020	India	The MPC also decided to continue with the accommodative stance as long as it is necessary to revive growth and mitigate the impact of COVID-19 on the economy while ensuring that inflation remains within the target.
7/16/2020	South Korea	As economic growth is expected to be sluggish and inflationary pressures on the demand-side are forecast to remain weak due to the COVID-19 pandemic, the Board will maintain its accommodative monetary policy stance.

Date	Country	Statement
6/5/2020	Chile	The Board's decision to keep the MPR at its technical minimum of 0.5 percent is consistent with the need for monetary policy to remain in this highly expansionary stance for an extended period of time, in order to ensure the convergence of inflation to the 3 percent target over a two-year horizon.
7/05/2020	Czech Republic	The new forecast implies significantly lower interest rates this year and the next and a weaker koruna-euro exchange rate than the previous outlook.
9/30/2020	Philippines	Given these considerations, the Monetary Board is of the view that a continued pause will allow prior measures by the BSP to further work their way through the economy.
6/11/2020	Ukraine	A decrease in the key policy rate below its neutral level indicates the end of the cycle of rapid monetary policy easing.

Source: Evdokimova et al. (2023).

Note: Copom = Monetary Policy Committee of the Banco Central do Brasil (BCB), MPC = Monetary Policy Committee of Reserve Bank of India (RBI), BSP = Bangko Sentral ng Pilipinas, the Philippine central bank.

What are the key empirical questions regarding the Fed's forward guidance: Is the FOMC providing a forecast of economic activity and indicating it will follow its usual rules, or instead, the FOMC is committing to a particular policy choice and bringing itself to follow it? Campbel et al (2012) differentiate the Fed's choices of forward guidance between Delphic and Odyssean. Delphic forward guidance forecasted the future but promised nothing, FOMC signals how they believe rates may change but does not explicitly make any commitment, while Odyssean forward guidance consists of the Fed committing to a certain policy, despite the likely outcome of its policy choice.

On that same note, Feroli et al. (2017) have categorized the Federal Reserve's forward guid-

ance into two types: data-based and time-based. Their study concluded that data-based (state-contingent) forward guidance offers beneficial characteristics that can strengthen monetary policy, provided it is communicated effectively and clearly. In contrast, time-based (calendar-based) forward guidance exhibits undesirable traits that should be minimized or eliminated. State-contingent guidance allows market participants to adjust their actions in response to economic data, whereas time-based guidance suppresses market volatility, encourages excessive risk-taking, and heightens financial instability. In practice, the Federal Open Market Committee (FOMC) has employed both types of forward guidance, sometimes within the same statement. However, as Fed Chair Jerome Powell (2016) noted remarks, the Fed initially implemented time-based forward guidance at the onset of the GFC but transitioned to data-based forward guidance following the December 2012 meeting.

Considering this, how does the Fed shape expectations? First, the Fed can influence public expectations by detailing the likely path of monetary policy. The Fed uses forward guidance implicitly, through FOMC's speeches and statements. During the ZLB, the Fed can promise to keep the rate low for a substantial period, which "can substitute for a policy rate cut". Werning (2011) suggested that during the ZLB period, a promise to be accommodative for an extended period can stimulate current aggregate demand, which eases financial conditions and, in turn, impacts output, employment, and inflation.

Second, the Fed can influence public expectations by explaining the details of its asset purchase or quantitative easing (QE). In the FOMC statement in September 2012, "In determining the size, pace, and composition of its asset purchases, the Committee will, as always, take appropriate account of the likely efficacy and costs of such purchases ", provide details of the Fed intent and the possible risk of QE. In other statements, in March 2013, the Fed began noting in its statement that it would consider "the extent of progress toward its economic objectives" in judging "the size, pace, and composition of its asset purchases" conditional on the Fed mandates on how the Fed ends its QE. Empirical work by Woodford (2012), Krishnamurthy, and Vissing-Jorgensen (2011) indicated that QE can be substituted for forward guidance and, therefore, may have similar effects. This can be done through the signaling impact of QE in the economy.

Lastly, the Fed can shape expectations by sharing FOMC views on the likely level of the Fed fund rate beyond the short-term horizon. The Fed's "dot plot" and the Summary of Economic

Projection (SEP) let market participants see the linkage between each FOMC participant's outlook and view on the appropriate monetary policy stance conditional on how the US economy will evolve. Despite the dot plot and SEP not having a consensus view of FOMC participants on the likely level of the Fed fund rate and projection of economic condition, these tools enhance Fed communications on the likely outcome of Fed decisions on its monetary policy.

While the empirical evidence has established that the Fed communication affects macroeconomic variables it is unclear whether these effects can spill over to EM (Bernanke et al., 2004; Cieslak Schrimpf, 2019; Gürkaynak et al., 2018; Schmeling Wagner, 2023). If the Fed's communication has a profound impact on the US economy and asset prices as indicated by the literature and given the US position and role in the global economy, it is plausible that Fed communication could have a residual impact beyond the US economy and can be extended to EM.

In addition, besides the Fed's "pure" monetary policy shocks, the Fed's communication also generates policy shocks (surprises) that can potentially spill over on EM. Mostly through the "announcement effect" or the "central bank information effect" (Stedman Gulati, 2023). Hou et al. documented the major contribution of the Fed's announcement of its monetary policy on the EM domestic interest rate movement. Expansionary Fed information shock increases appetites for EM risky assets that drive capital flows toward EM. Conversely, contractionary Fed information shocks result in capital outflows from EM to the US causing the depreciation of EM currencies (Pinchetti Szczepaniak, 2024).

Against this backdrop, an important contribution of this dissertation is the construction of a novel index used to identify the stance of US monetary policy that is orthogonal to the EM business cycles. This involves applying the advances in natural language processing (NLP) in extracting latent components of FOMC's decision, utilizing the Fed's statements and FOMC participants' speeches. I do this for statements and speeches from 1999 to 2024 from the Fed website. The speeches are selected randomly from the FOMC voting members. In selecting the press release, there are much fewer restrictions since statements always contain information on the Fed's stance on monetary policy. There is only an exception where the statements don't contain much information on the conduct of monetary policy which I excluded in the selection of statements.

After the monetary policy stance (MPS) index is built. The MPS index is used to evaluate the spillover of US monetary policy to the EM business cycle using the structural vector autoregression (SVAR) model. In the empirical analysis of the chapter, I am agnostic to the types of Fed forward guidance. However, I encourage future work on this topic. This chapter is limited to the actual stance of monetary policy indifferent to the style of Fed communication

EM central banks could benefit from knowing whether Fed communication could spill over to their economy and, to some extent improve EM domestic monetary policy decisions. This paper aims to fill the gap in the literature and contribute to this discussion by providing evidence on the effects of Fed communications on EM business cycles. Identifying the Fed's communication as a novel channel of US monetary policy spillover to the EM.

The main results are

The rest of the paper is structured as follows.

1.2   Review of Literature

Central bank's communication on the stance of monetary policy has come a long way over the last two decades. Before the GFC, many central banks including the Fed pursued communication with little transparency and openness. Things have turned differently after the GFC when many central banks recognized that monetary policy works not only on the current settings of monetary policy but also on the future path of monetary policy. In this context, Fed communication can influence public expectations to improve current economic conditions.

This chapter is related to the seminal work of Lucas (1972 and 1973) on the macroeconomic model with the rational agent. In his seminal work on rational expectation, agents in the model form expectations not only on current consumption decisions but also in the future. This theoretical result also known as the household's Euler equation describes the household's intertemporal substitution between current and future consumption.

Can the Fed announce a certain policy and neglect it ex-post? Or can the agents in the economy learn the truth in the long run? Using the rational expectation model with social learning, Jia and Wu (2023) surprisingly found that ambiguous communication helps the Fed gain credibility and improve welfare in the long run and can be time consistent.

Following the discussion of the literature and borrowing from Taylor's (1993) seminal paper and other works on rules versus discretion in the conduct of monetary policy. The Fed can communicate its decision on satisfying certain conditions before exiting a "highly accommodative" stance of monetary policy. The adoption of these rules simplifies central bank communication, requiring only an announcement that the central bank will adhere to its announced rule.

In other words, the Fed can communicate its reaction function and detail the implementation of its monetary policy. This reduces variation in public expectations on the future path of monetary policy and avoids the time inconsistency problem. Subsequently, the Fed's communication of its stance of monetary can also lever the use of SEP and the dot plot as communication tools, by providing a summary of FOMC's participant views on the likely level of the Fed funds rate and outcome of the US economy.

One complication in this communication policy (rule). Following such a rule is too rigid to capsulate the complexity of the conduct of monetary policy and requires the Fed to have a reliable model of the US economy so the Fed can use policy instruments close to the optimal rule (Feroli et al., 2017). This can be further by Chairman Jerome Powel's (2019) remarks, "At the Fed, we like to say that monetary policy is data dependent. We say this to emphasize that policy is never on a preset course and will change as appropriate in response to incoming information. But that does not capture the breadth and depth of what data-dependent decision-making means to us".

In practice, the remark from Jerome Powel indicates the desire of the Fed to follow a certain rule, which is the Fed's action will always depend on incoming data which become permanent fixtures of Fed communication. Abiad and Ciminelli (2024) documented how a data-dependent Fed monetary policy spillovers to EM. They found that Fed data dependency was low during the ZLB period similar to the GFC and during the pandemic. Going back to earlier cited literature, I argue that during the ZLB to build credibility the Fed must follow through on a promise to be highly accommodative (Odyssean), maybe even irrespective of the incoming data, or never commit a policy conditional to certain criteria such as improvement in labor market condition or inflation target. In addition, they have found that strong macroeconomic fundamentals of EM can mitigate the spillover from Fed monetary policy.

How does the Fed communication impact EM? Despite the importance of Fed communica-

tions, few studies investigate its international spillover. After the Fed changed its communication strategy EM central banks followed the same open and transparent communication. Evdokimova et al., (2023) have documented that EM central banks outperformed advanced economies' central banks in implementing forward guidance in terms of signaling financial market participants regarding the direction of monetary policy.

Other focus on the effects of Fed communication on EM financial markets. Hayo et al., (2010) shows that Fed communication has a significant statistical and economic impact on European and Pacific equity market returns. Jang and Seo (2022) documented a similar result using equity return on the Korean stock market. These results are consistent with other studies that indicate that Fed communication conveys important information about the macroeconomic condition which is reflected in the equity market returns (Chan Marsh, 2022; Cieslak Schrimpf, 2019; Savor Wilson, 2013, 2014).

Despite the results of the cited literature, there is still limited evidence of EM business cycle spillover from Fed communication which this dissertation wishes to contribute. What is the novel contribution of this dissertation: First, most of the cited literature exploits the changes in its target variables on a short window of time using high-frequency time series. This literature focuses on the Fed's "announcement effect" and the "central bank information effect". This methodology is common in event studies literature. In this chapter, I focus on quarterly time series of control and dependent variables. To the best of my knowledge, there is a limited study that focuses on EM business cycles, to which the chapter wishes to contribute

Second, while similar index is built to measure the stance of US monetary policy such as the monetary policy uncertainty index by Husted et al. (2020) and the economic policy uncertainty index by Baker et al. (2015). This index is built from the macroeconomic news content of the Fed communications using textual analysis. A method requiring counting words or phrases related to monetary or economic policy uncertainty. The MPS index built for this dissertation utilizes NLP that considers the context and intent of the Fed using the central bank language models (CB-LMs) - language models retrained on a large-scale collection of central banking texts. The dissertation uses FOMC statements and speeches consistent with Swanson's (2023) findings on the superior information content of FOMC statements and speeches.

1.3 Review of Central Bank Communication

1.4 Constructing the Monetary Policy Stance (MPS) Index: A Natural Language Processing (NLP) Approach

In this section, I describe the methodology of extracting the stance of US monetary policy using NLP. As mentioned earlier, the MPS index is not the first measure of the US monetary policy stance. In addition to actual monetary policy shock, when the Fed announces or communicates its stance on monetary policy, it creates shock besides actual shock per se of Fed monetary policy. The nature and magnitude of this monetary policy stance (Fed communication) shocks is context specific, which fails to be captured by the earlier attempts using macroeconomic information from news-based sources (Baker et al., 2015; Husted et al., 2020). The NLP approach using CB-LMs proposed in this chapter aims to bridge this gap in methodology.

In this section, I will discuss the method to capture the latent features embedded in FOMC statements and speeches, extracting the stance of US monetary policy.

The code and data used for this dissertation including the Phyton code for the implementation of the NLP model in this chapter can be found in the GitHub repository: https://github.com/aris-zoleta/dlsu$_d issertation$

1.4.1 Data Collection

The initial task involves downloading the Federal Reserve statement and speeches from the Fed website, covering the period from 2000 to 2024. These minutes are then converted into CSV files for subsequent analysis. Typically, the Fed statement and speeches include the names of those who voted during the meeting; however, this section is excluded to ensure the text analysis focuses solely on the content. Additionally, other non-essential parts of the meeting records are also removed. The process of converting PDF files to CSV is all done using Phyton libraries.

1.4.2 Data Processing, Tokenization and Feature Extraction

The goal of NLP is to transform human-readable text into a machine-readable format. During text analysis and model training, several steps are necessary to ensure the text is suitable for machine processing. First, we clean and standardize the text by converting it to lowercase, removing punctuation, eliminating stop words, and performing word lemmatization.

The cleaned text is tokenized into individual words using the NLTK library. Tokenization, the process of splitting text into smaller units like words or phrases, is essential for machine learning algorithms to process the text. This step transforms the continuous stream of text into discrete elements, enabling the model to analyze and understand the structure and meaning of the text. By breaking the text into tokens, machines can learn from the syntax and sentiment of the text based on the training model.

For feature extraction, the Term Frequency-Inverse Document Frequency (TF-IDF) method is employed. TF-IDF quantifies the importance of words within the corpus by measuring their frequency relative to the entire document collection. In other words, it assigns weight based on the term frequency (TF) and the inverse document frequency (IDF). Words with higher TF-IDF scores are considered more important, as they appear frequently in a specific document but not across many documents in the corpus.

1.4.3 Model Selection, Training and Evaluation

RIDGE regression, a regularized linear regression method, is chosen for this study due to its effectiveness in handling multicollinearity and its ability to prevent overfitting. The RIDGE regression model introduces a penalty term to the loss function, which shrinks the regression coefficients. RIDGE does penalize coefficients that do not add to the regression accuracy. It can be described by the below equation.

$$\text{Loss} = \sum_{i=1}^{n} (y_i - \hat{y}_i)^2 + \lambda \sum_{j=1}^{p} \beta_j^2 \tag{1.1}$$

Where the λ is the regularization parameter and β_j^2 is the regression coefficient.

Model Training

From the collection of Federal Reserve minutes downloaded from the Fed website, several documents are randomly selected for the training dataset. Each chosen document is reviewed by an economist, who highlights key phrases and assigns scores ranging from -10 to +10. These scores reflect the economist's assessment of the Fed's data dependency, with -10 indicating that the Fed is data-dependent but will maintain its policy regardless of incoming data, and +10 indicating that the Fed will act based on incoming data.

The dataset is then split, with 80 % used for training the model and 20% reserved for testing its performance. Stratified sampling is employed to ensure that both the training and testing sets have the same distribution of data dependency scores. Hyperparameter tuning is conducted to achieve a balance between bias and variance in the model.

Model Evaluation The performance of the RIDGE regression model is evaluated using the following metrics: (1) Mean Squared Error (MSE): Measures the average squared difference between actual and predicted scores. (2) R-squared (R^2): Indicates the proportion of variance in the dependent variable that is predictable from the independent variables. (3) Mean Absolute Error (MAE): Measures the average absolute difference between actual and predicted scores.

Model Prediction and Implementation After the model is trained and meets our requirements, it is saved in a local directory for future use. This model is then employed to predict the similarity of new documents, providing scores based on phrases that were manually scored by economists. RIDGE regression is applied in this prediction task. Once the model provides a score, it is normalized to a scale of 0 to 10.

1.5   Empirical Model

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CHAPTER 2

**US MONETARY POLICY SPILLOVER AND SHIFTS IN
SOVEREIGN RISK PREMIUM: EVIDENCE FROM SELECTED
EMERGING SOUTHEAST ASIAN CDS SPREAD**

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Abstract

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I construct new measures of US monetary policy stance using Federal Reserve Open
Market Committee press releases and speeches - monetary policy stance (MPS)
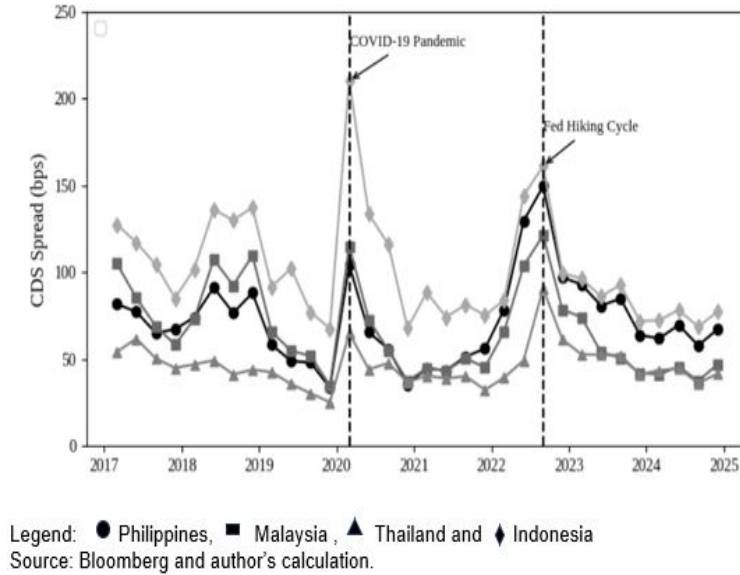index using natural language processing (NLP).

2.1 Introduction

During the recovery from the previous pandemic, the Federal Reserve (Fed) initially believed
that inflation was transitory. However, it has become clear that persistent cost-push shocks
originating from the pandemic are driving the prolonged inflation in the US. As a result, the Fed
abruptly raised the federal funds rate. Which, over this period, the credit default swap (CDS)
spreads of several emerging markets (EM) rose significantly. The empirical literature associates
this shift in CDS spreads with changes in the underlying credit risk of EM sovereign bonds but
pays little attention to the impact of changes in US monetary policy as a driver. (Daehler et
al., 2021; Pereira et al., 2018). In this chapter, I examine the effects of US monetary policy on
selected Southeast Asian economies' sovereign risk premium, focusing on Fed communication
as a novel transmission channel for the US monetary policy spillover. Building upon this, I
investigate shifts in CDS spreads as a proxy for sovereign risk premiums.

The portfolio rebalancing effect and the financial channel is a well-established linkage be-
tween US monetary policy and EM sovereign risk premium. However, the impacts of the Fed's
communication on EM sovereign risk premiums are less understood. I explore how Fed commu-
nications surprises could significantly impact sovereign risk premium, over and above the impact

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of actual policy changes (Schmeling Wagner, 2015). When the Fed hikes interest rates it led investors to shift capital from EM to the US, increasing risk premiums despite no changes in EM fundamentals. How the Fed communicated its stance of monetary, can predict future outcomes on financial markets' demand for EM risk premia (Cieslak McMahon, 2023). Still, the specific channels through which US monetary policy spillover through the Fed communication affects financial markets and EM risk premiums continue to be debated.

Figure 2.1: CDS Spread of Selected EM in Southeast Asia

Legend: ● Philippines, ■ Malaysia , ▲ Thailand and ◆ Indonesia
Source: Bloomberg and author's calculation.

Understanding those channels requires the identification of Fed communications and its information content on the stance of US monetary policy. Others try to extract the stance of US monetary policy or the state of the US economy using news-based sources (Baker et al., 2016; Husted et al., 2020). For example, Husted et al (2020) constructed the monetary policy uncertainty (MPU) index to measure how the financial markets perceive the Fed's monetary policy stance and its consequences on the economy. Their identification starts by counting the number of words or phrases that contain the topic of monetary policy uncertainty using several news outlets in the US.

This poses two challenges, at least for this chapter. First, policy surprises are inevitable or

sometimes engineered. For example, in some cases, the Fed will communicate that it will not change its monetary policy stance until the labor condition improves or the level of inflation is within the Fed's target. However, despite those conditions being met, the Fed continue its current monetary policy stance. Fed's policy stance is complex and evolving to be contained into simple word count rules. To overcome this, I use advances in natural language processing and language modeling techniques to identify the Fed's intent and context using FOMC press releases and speeches. Second, the transmission of U.S. monetary policy to EM sovereign risk cannot be fully explained through traditional trade or financial channels. Identifying the spillover effects of U.S. monetary policy using Federal Reserve press releases and speeches proves even more challenging. While it is beyond the scope of this analysis to fully address these limitations, I offer insights into the intricate relationship between U.S. monetary policy and EM sovereign risk premia.

The empirical analysis began by constructing a novel monetary policy stance (MPS) index built using natural language processing (NLP), which aims to capture the stance of US monetary policy. Then, I utilize a benchmark local projection (LP) model, incorporating the MPS index and other control variables such as output, inflation, and sovereign bond yield, into the regression model. To ensure robustness, the benchmark LP model is modified to include other measures of global uncertainty such as the VIX index as the proxy for implied volatility in U.S. equity, the MOVE index for the bond market, and Fed Funds rate futures that capture uncertainty in US monetary policy. To account for the shifts in EM sovereign risk premiums, the chapter uses CDS spread which extracts investors' risk premia on factors beyond just EM default. The chapter's main is finding. The plan of the chapter is as follows

2.2   CDS Market and Spread

What is CDS? CDS is a derivative instrument that protects its buyers from default of the underlying sovereign bond and CDS spread is the price of CDS quoted in basis points (bps). For concreteness, a 5 bps CDS spread means that the CDS buyer shall pay 50,000 thousand dollar's worth of annual premium as payment for protection for an EM sovereign bond with 5-million-dollar notional value. In this transaction, the seller of the CDS received the premium

while the CDS buyers received the full notional value of the bond in the event of EM default. Hence the derivative instrument is called a credit default swap, where cash is being exchanged during the credit event such as the default of an EM.

The CDS market has an important function in the economy, during great market distress, CDS spreads serve as instruments for market participants to communicate the underlying credit risk in the EM bonds. This was profoundly observed when there was a substantial change in EM fundamentals during the pandemic and again during the Fed hikes cycle when financial market participant rebalanced their portfolio.

2.3   Literature Review

This chapter is related to the growing body of literature that explores the information content of Fed communication. Early works on this topic use the Federal Reserve Open Market Committee (FOMC) minutes. Fed minutes provide details of the deliberations and subsequent decisions on the stance of US monetary policy (Bailey Schonhardt-Bailey, 2017; Edison Carcel, 2021; Ruman, 2023; Stekler Symington, 2016; Tadle, 2022). Even though the Fed minutes are communicating important details of the FOMC members' views on the stance of US monetary policy, it has certain limitations. With the Fed embargo, Fed minutes are becoming publicly available only after the actual Fed decision or even its announcement, making them an unsuitable instrument for measuring the stance of monetary policy. To overcome this limitation, the MPS index relies on press releases and speeches from FOMC members in inferring the Fed's decisions on monetary policy. These documents have the advantage of better conduits to the Fed's decisions.

The MPS index proposed in this chapter is not the first attempt in the literature to quantify the central bank's stance on monetary policy. Earlier contributions in this area include the work of Duguay (1994) and Freedman (1994) who introduced the monetary conditions index (MCI) which measures both transmission channels of domestic monetary policy through interest rates and US monetary policy through the EM exchange rate. Since its introduction, MCI has gained attention among researchers and central bankers (Aslam Memon Jabeen, 2018, 2018; Batini Turnbull, 2000; Esteves, 2003). Other indexes are also built to understand the complexity of

the conduct of monetary policy. Unsal et al. (2022), for example, constructed the Independence and Accountability, Policy and Operational Strategy, and Communications (IAPOC) index by analyzing central banks' laws and websites from 2007 to 2021. While other indexes measure the financial condition of the economy (Ajello et al., 2023; Ferriani Gazzani, 2022; Gochoco-Bautista, 2013; Zheng Yu, 2014).

The chapter is also related to the literature that documents the spillover of US monetary policy in EM. Rey (2015) provides evidence that due to the US's role as a supplier of international reserves, EMs cannot counteract the effects of US monetary policy. The persistence and strength of US policy on EME sovereign risk are directly linked to the EM's connection to international capital flow. In this framework, movement in EM sovereign risk premium can happen despite domestic monetary policy conditions. Additionally, other studies highlight the asymmetry of the US monetary policy spillover between EM and advanced economies. Kalemli-Özcan (2019) demonstrated that EM is more sensitive to changes in US monetary policy than advanced economies due to the role of US monetary policy in global risk appetites influencing capital flows in EM.

Lastly, the chapter is related to the literature that focuses on the impact of global factors in driving EM sovereign risk premium. Bernie et al. (2021) demonstrated that US QE has significant effects on EM business cycles. In addition, they show that the US and advanced economies' quantitative easing (QE) makes it harder to measure the spillover of US monetary policy on sovereign risk premiums. The US monetary policy spillover to EMs' sovereign risk premiums operates on the global financial cycle through capital flows, leverage cycle, and dollar intermediation. Therefore, the propagation of a US monetary policy shock to many EMs works independently from EMs' fundamentals.

The existing literature has well documented the relationship between EM fundamentals such as the level of debt or current fiscal stance and sovereign risk premiums. Despite receiving little attention in the literature, shifts in U.S. monetary policy could offer alternative explanations for changes in EM sovereign risk premiums. Yet, there is a dearth of evidence for this view suggesting that the underlying issue may need further study. The paper's primary contribution to the literature is the identification of Fed communication as a channel through which US monetary policy influences shifts in EM sovereign risk premium.

CHAPTER 3
EMERGING MARKET FOREIGN EXCHANGE RATE
SPILLOVER FROM FED COMMUNICATION

Abstract

The goal of this study was to review the risk associated with increases in sovereign deficits and the role of public investment in pandemic recovery. The estimates of DSGE models show that fiscal authority provides more emphasis on debt to GDP than output and deficits. In addition, the stochastic simulation shows that increases in public investment do not limit increases in private investment. And both public and private investment exhibit procyclical behaviors in the presence of government spending shock. Lastly, the output is more persistent during episodes of technology shocks than during an increase in government spending. The paper also shows that output, private investment, and government capital and deficit responded more to the fiscal rules that embed government capital than without.

3.1   Introduction