Uncertainty and Economic Activity: Does it Matter for Thailand?

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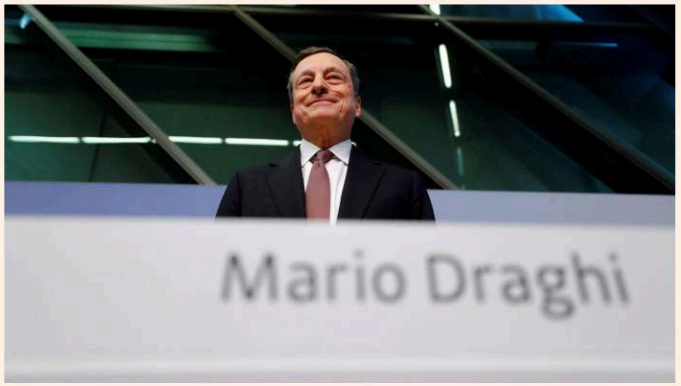
The views and opinions expressed in this presentation are those of the authors.

Powell says economy facing growing uncertainties

By MARTIN CRUTSINGER June 26, 2019

Draghi strikes glum economic tone amid 'persistent uncertainties'

European Central Bank chief warns risks to outlook still 'tilted to downside'



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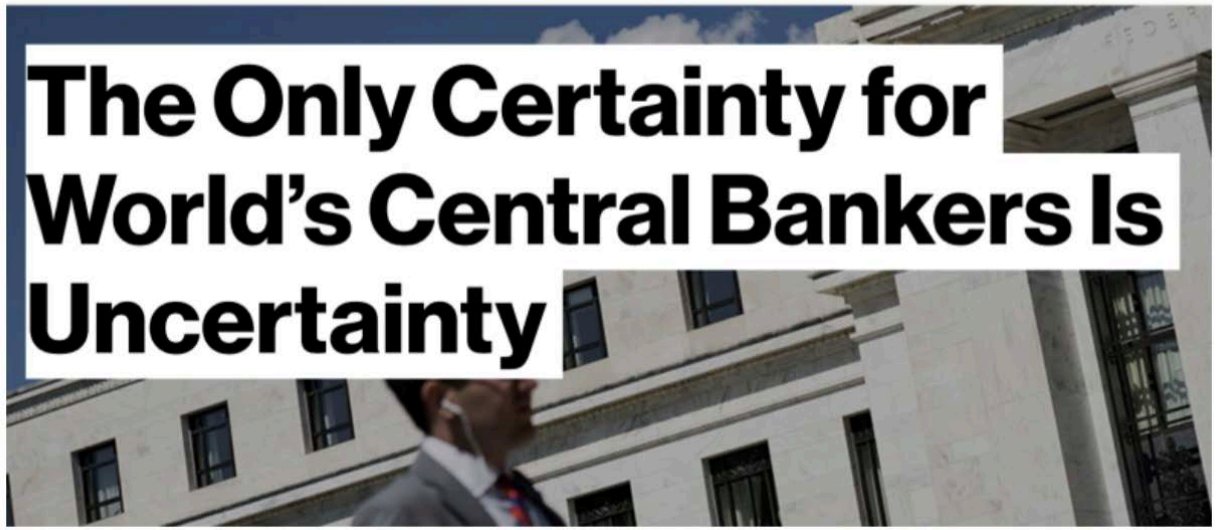
BloombergPolitics ▼ The Only Certainty for World's Central Bankers Is Uncertainty



ผู้ว่าการแบงก์ชาติชี้
New Normal เศรษฐกิจโลก
ผันผวน/ไม่แน่นอน/ซับซ้อน/ไม่ชัดเจน

Related literature: Measurements

How to estimate degree of economic-related uncertainty?

1. Economic Policy Uncertainty: News-based (Baker et al. 2016)
2. Macroeconomic uncertainty I: Model-based (Jurado et al. 2015)
3. Macroeconomic uncertainty II: Distribution-based (Rossi and Sekhposyan 2015)
4. Macroeconomic uncertainty III: Market-based (Scotti 2016)
5. Financial uncertainty I: Model-based (Ludvigson et al. (2018)
6. Financial uncertainty III: Market-based (Bekaert et al. 2013)
7. Principle component analysis: Forbes (2016)
8. And many categories: Monetary policy uncertainty, Political uncertainty, Geopolitical uncertainty, Firm-level uncertainty etc.

"Since it's not directly observable, hence various measures"

Related literature: Macro impacts

Does uncertainty matter for macroeconomy?

- Yes, large impacts. Bloom (2009), Christiano et al. (2014), Baker et al. (2016)

- No, small impacts. Bachmann et al. (2013), Carriero et al. (2018)

"still inconclusive"

NB: Using different measures and country specific

This paper…

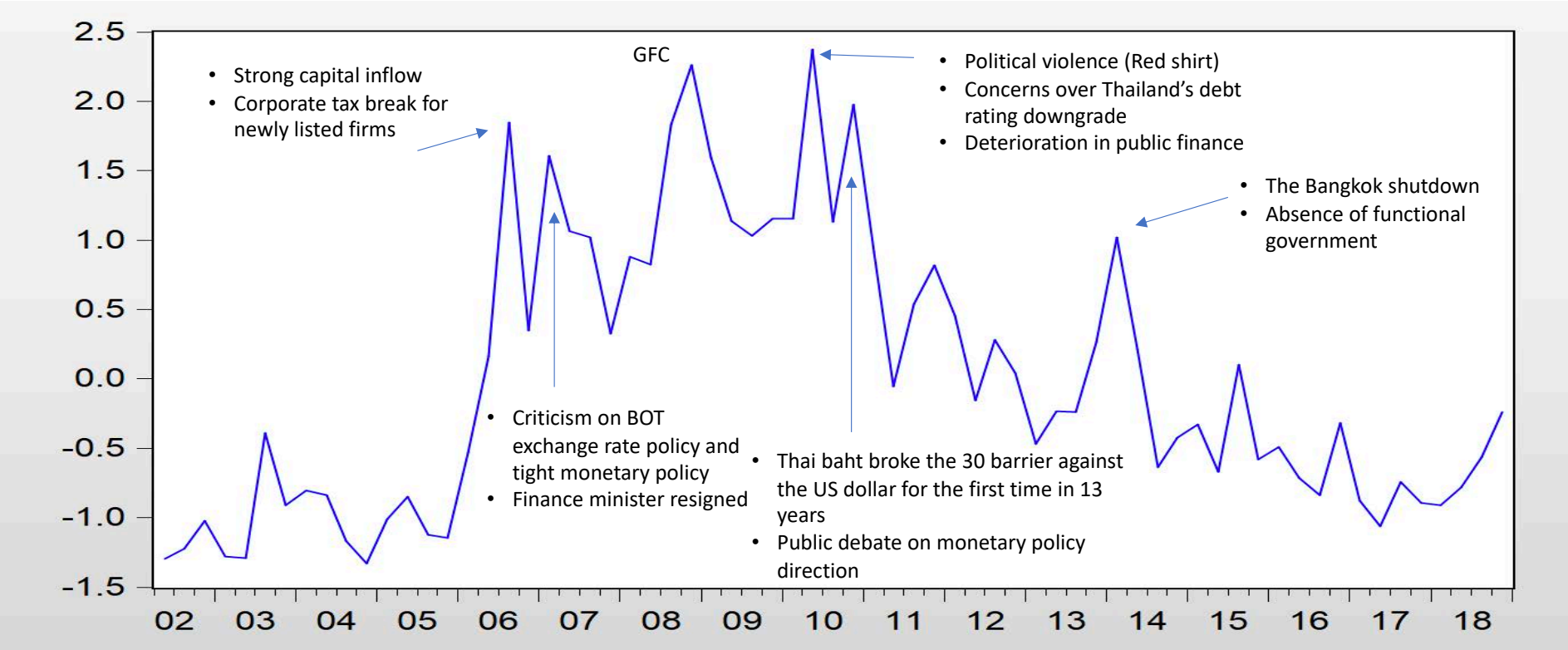
To analyze the role of uncertainty for macroeconomic dynamics in Thailand

- Does not rely on any single indicator but employ various measures of ‘economic-related uncertainty’
- Examine the impacts of uncertainty on real activity along a number of dimensions (e.g. long-run vs short-run; upside vs downside; policy vs macro vs financial; global vs local)

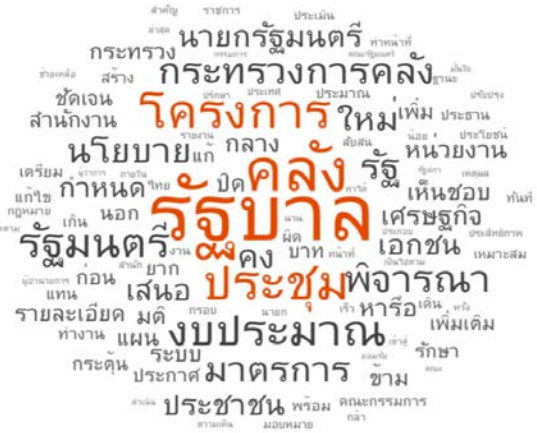
1: News-based policy uncertainty

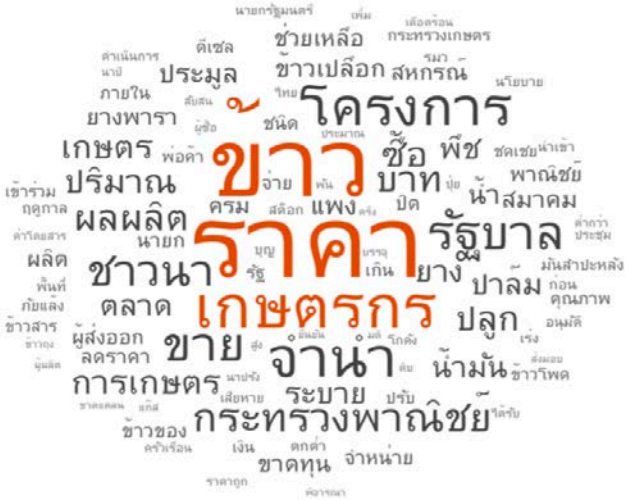
- Measurement concept: Frequency of newspaper coverage
- Data sources: Two English (longer sample) and Five Thai newspapers (shorter sample)
- Estimation techniques:
  - Boolean/keyword search (Baker at al. (2016)
    - {("Thailand" or "Thai") and economy} AND
    - {"uncertain" or "uncertainty" or "uncertainties" or "risk"} AND
    - {"bank of thailand" or "central bank" or "monetary policy" or "baht" or "currency" or "exchange rate" or "capital flow" or "ministry of finance" or "finance ministry" or "budget" or "tax" or "government spending" or "public debt" or "budget"}.
  - Unsupervised machine learning (Azqueta-Gavaldon 2017)
    - We use 40-topic model based on Latent Dirichlet Allocation (developed by Blei et al. 2003).

Economic Policy Uncertainty for Thailand

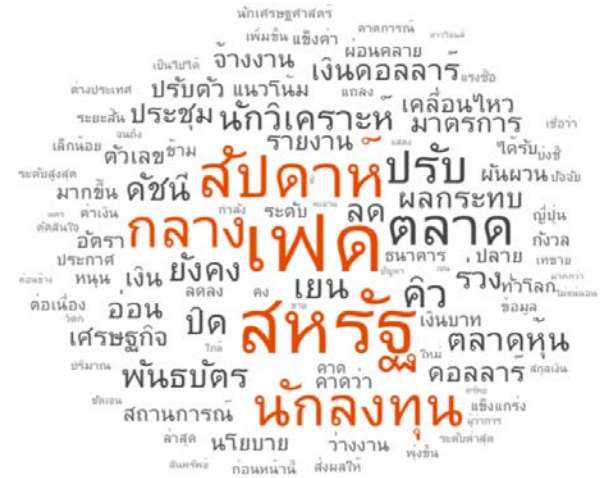


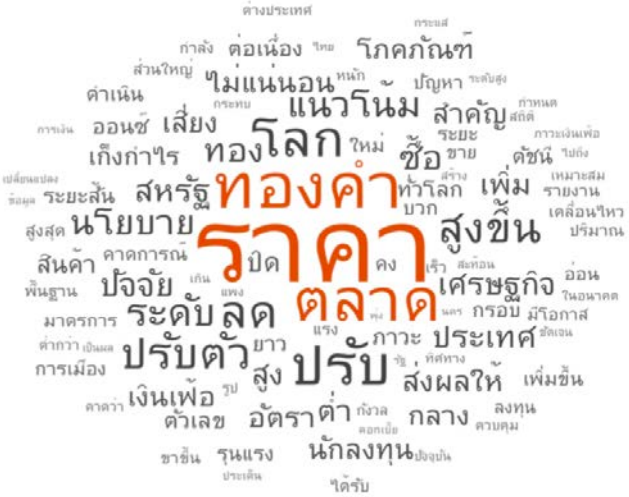
Topic-based uncertainty

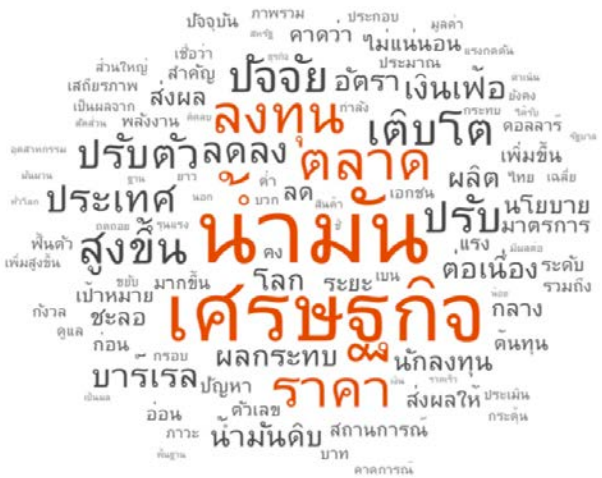




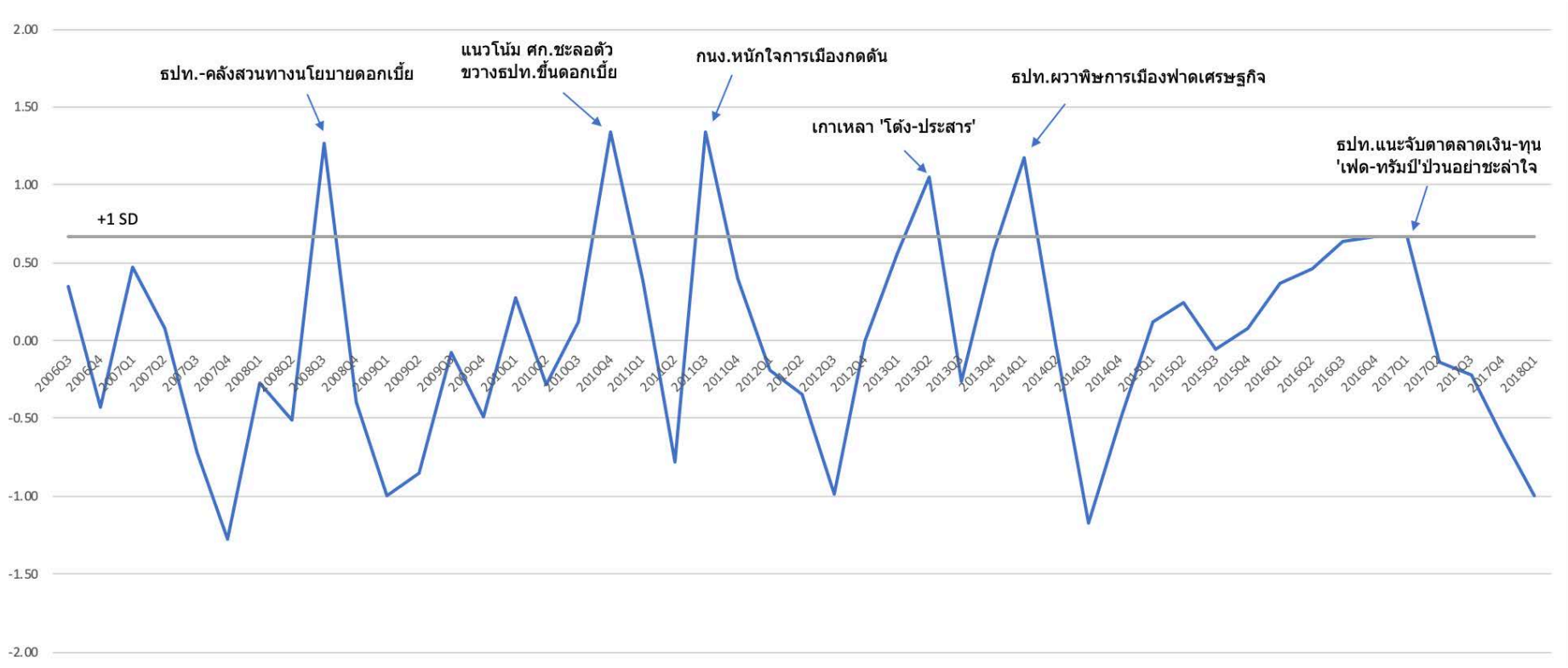
Topic-based uncertainty



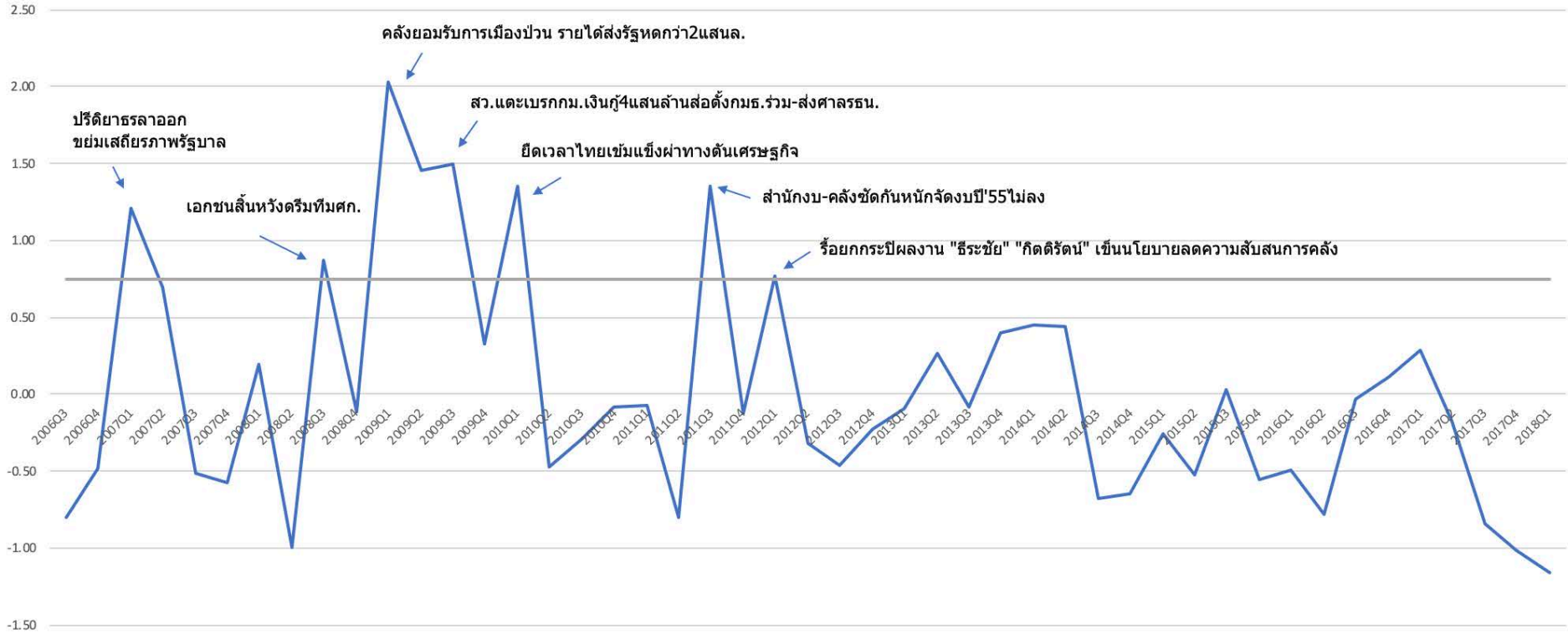




Monetary policy uncertainty for Thailand

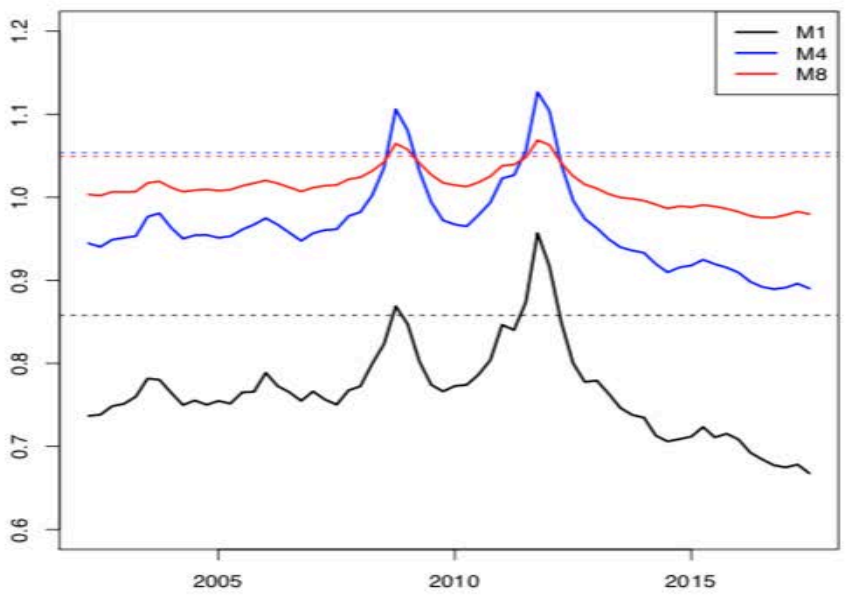


Fiscal policy uncertainty for Thailand

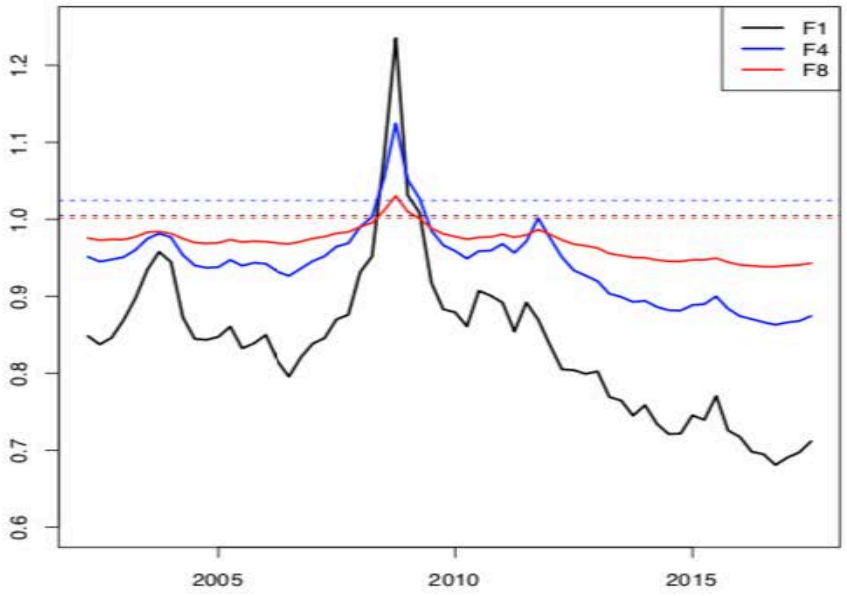


2: Macroeconomic/Financial Uncertainty

- Measurement concept: “what matters for economic decision making is not whether particular economic indicators have become more or less variable or disperse per se, but rather whether the economy has become more or less predictable…”
- Data sources: 200+ macro and financial time series
- Estimation techniques:
  - Conditional variance of ‘unforecastable component’ of macroeconomic and financial variables
    - FAVAR + Stochastic volatility models



(a) Macroeconomic Uncertainty



(b) Financial Uncertainty

Note: The left and right panels show JLN-based 1, 4 and 8 quarter-ahead macroeconomic and financial uncertainty series ($M1, M4, M8$ and $F1, F4, F8$ respectively). Dashed horizontal lines show 1.65 standard deviations above the mean of each corresponding uncertainty series.

3: Upside/Downside Economic Uncertainty

- Measurement concept: Distance between predicted forecast distribution and actual realization
- Data source: BOT's GDP growth forecast
- Estimation technique: Comparing realized forecast error to the percentile in the historical forecast error distribution

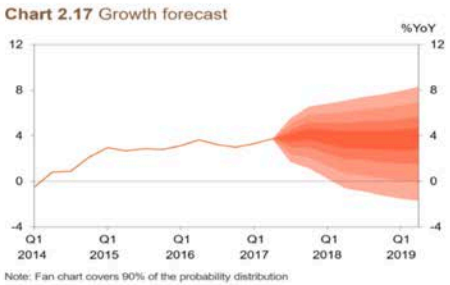
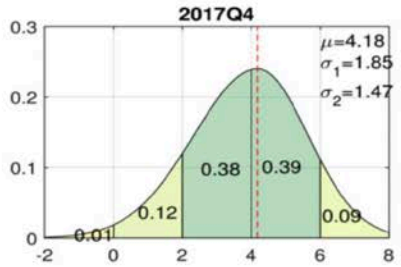


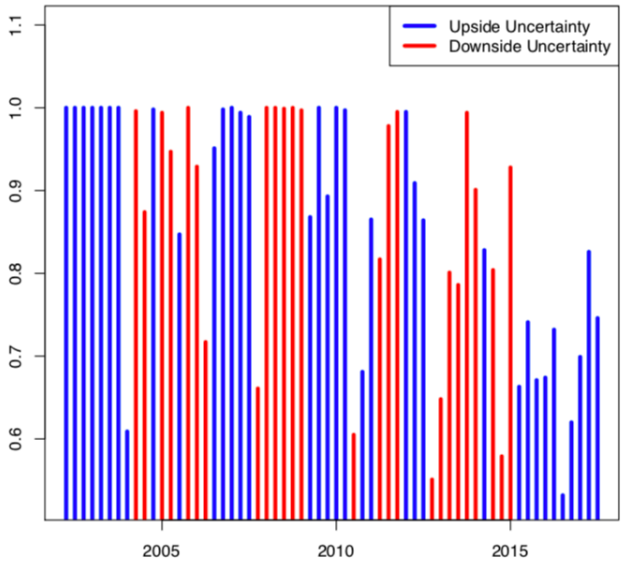
Table: Probability distribution of GDP growth forecast

Percent	2017 Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2
10-12	0	0	0	0	0	0	1	1
8-10	0	0	1	2	2	3	4	5
6-8	2	9	10	10	12	12	13	13
4-6	37	39	32	27	26	25	24	23
2-4	51	38	35	31	29	28	26	25
0-2	9	12	18	20	19	20	19	18
(-2)-0	0	1	4	8	8	9	10	10
< (-2)	0	0	1	2	3	4	4	5

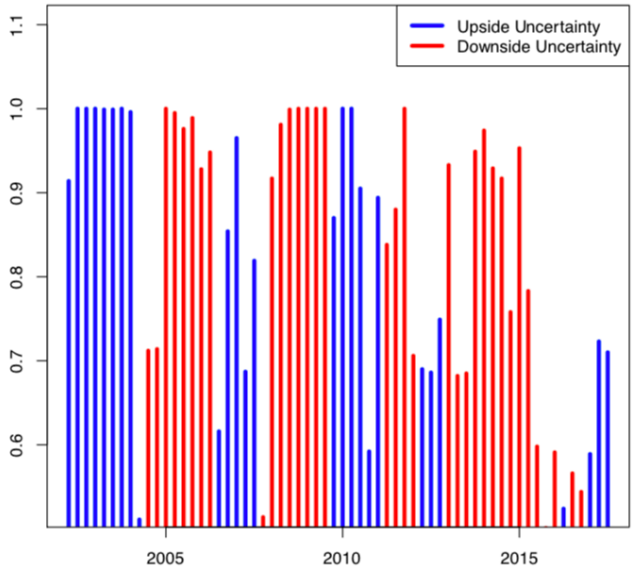
Assume split normal distribution



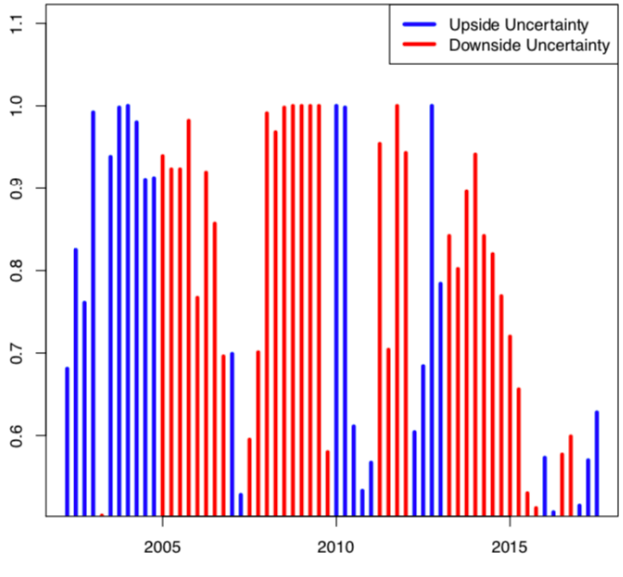
Upside/Downside Economic Uncertainty



(a) h=1



(b) h=4



(c) h=8

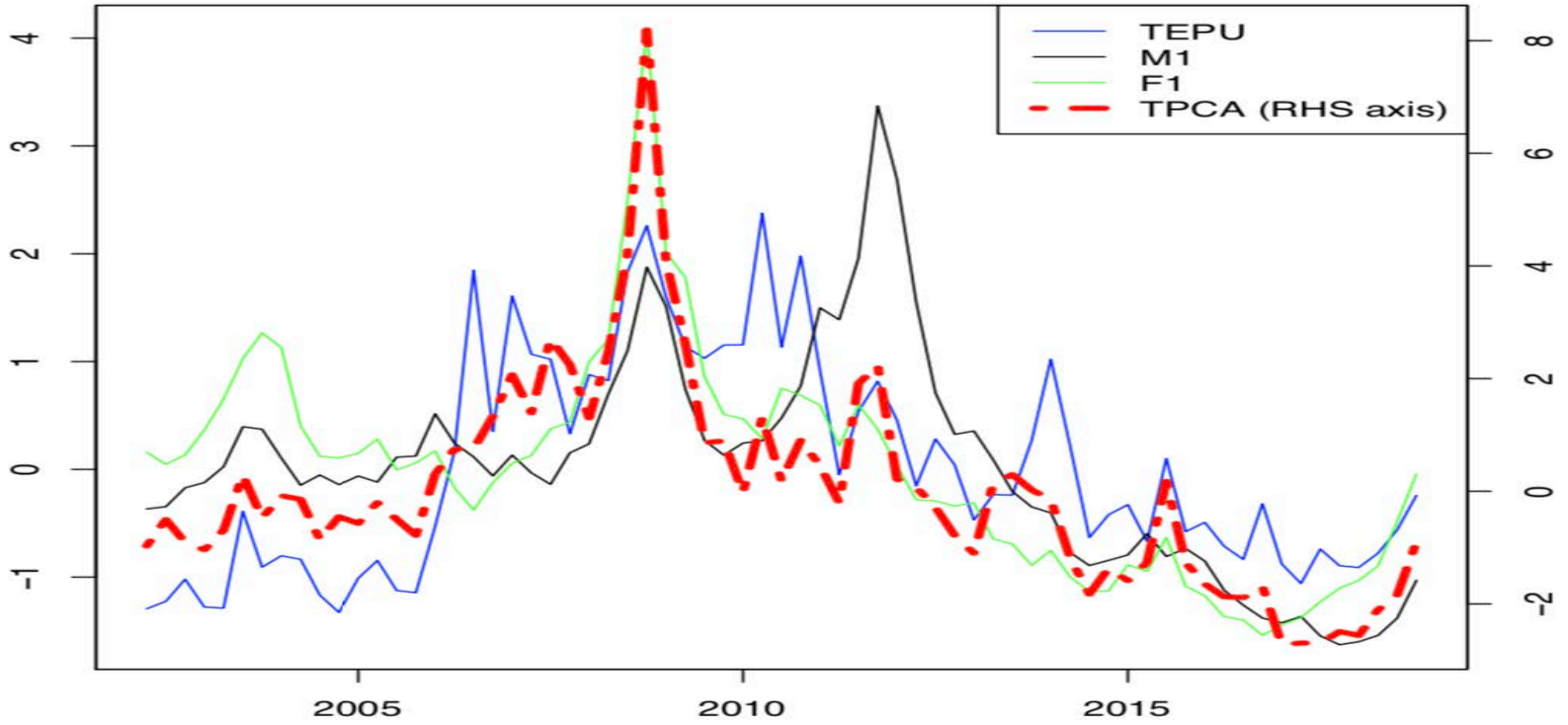
Note: Plotted are upside and downside uncertainty measures extracted from BOT fan charts for GDP growth forecasts according the RS approach. Estimates are reported for h= 1, 4, 8 quarter-ahead forecasting horizons ($BOT^{+}1, BOT^{+}4, BOT^{+}8, BOT^{-}1, BOT^{-}4, BOT^{-}8$ respectively).

4: Principal component of uncertainty measures

- Two groups:
  - Our own estimates of (1) Policy uncertainty; (2) Macro uncertainty; (3) Financial uncertainty

- and some selected proxies:
  4) Thai consumer confidence index (CCI)
  5) Thai business sentiment index (BSI)
  6) Equity market volatility
  7) Foreign exchange (USDTHB) volatility

Principle Component of Uncertainty Measures



Note: Plotted is the first principal component (TPCA) of seven uncertainty proxies: news-based economic policy uncertainty (TEPU), one-quarter-ahead macroeconomic uncertainty (M1), one-quarter-ahead financial uncertainty (F1), 60 days moving-average historical volatility of the SET50 index (SETVOL), 3-month moving average option implied volatility of the USDTHB exchange rate (USDTHBVOL), the consumer confidence index (CCI) and the business sentiment index (BSI).

Macroeconomic impacts of uncertainty shocks: Empirical setup

- Following Baker et al. (2016), the specification of baseline SVAR is:

  {*Ut, log(SET), policy rate, log(CPI), log(real activity)*}

  - Ut include M(1,4,8); F(1,4,8); BOT(1,4,8)(+,-); TEPU; TPCA
  - Response of RGDP, C, I, X
  - With Thailand being SOE, we include log of world imports as control variable

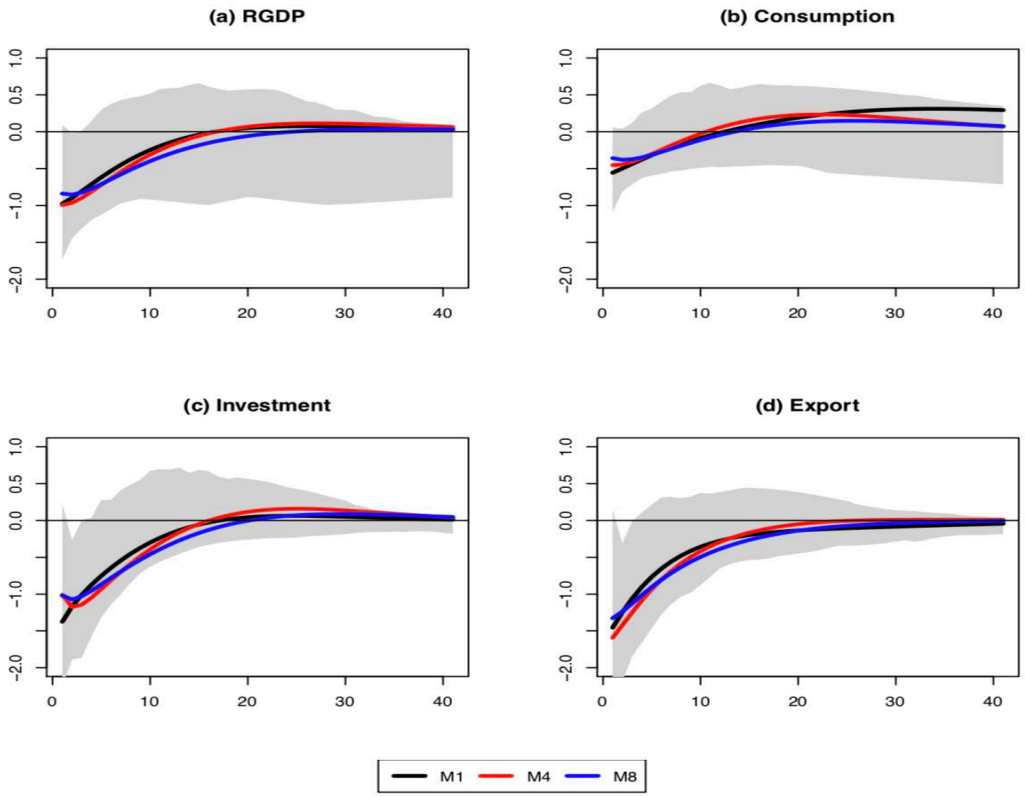
- Augmented domestic VAR with foreign uncertainty shocks (Ut*) as the first variable in the baseline
  - M1*, F1* and GPU

Macroeconomic impacts of uncertainty shocks: Uncertainty? What uncertainty?

Specifically, we look at:

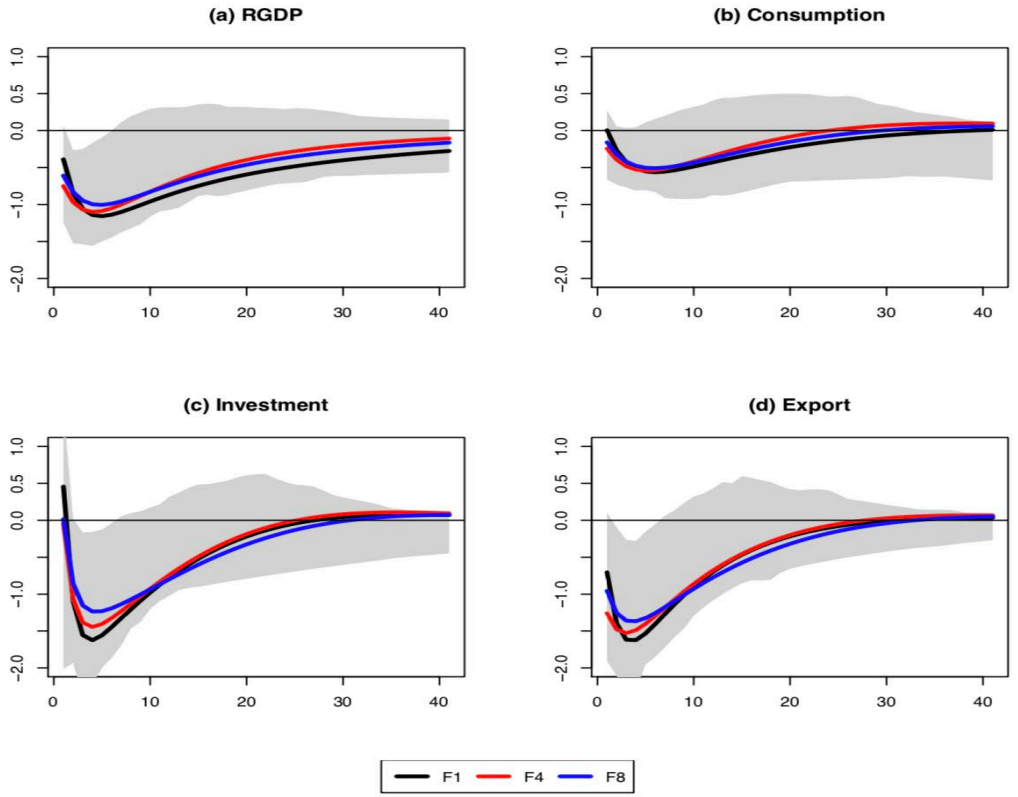
1. ‘Short-run’ vs ‘Long-run’ component
2. ‘Downside’ vs ‘Upside’ uncertainty
3. Relative importance of ‘Policy’ vs ‘Macro’ vs ‘Financial’ uncertainty
4. ‘Broad measure’ of uncertainty (PCA)
5. ‘Foreign’ vs ‘Local’ source of uncertainty

Macroeconomic uncertainty



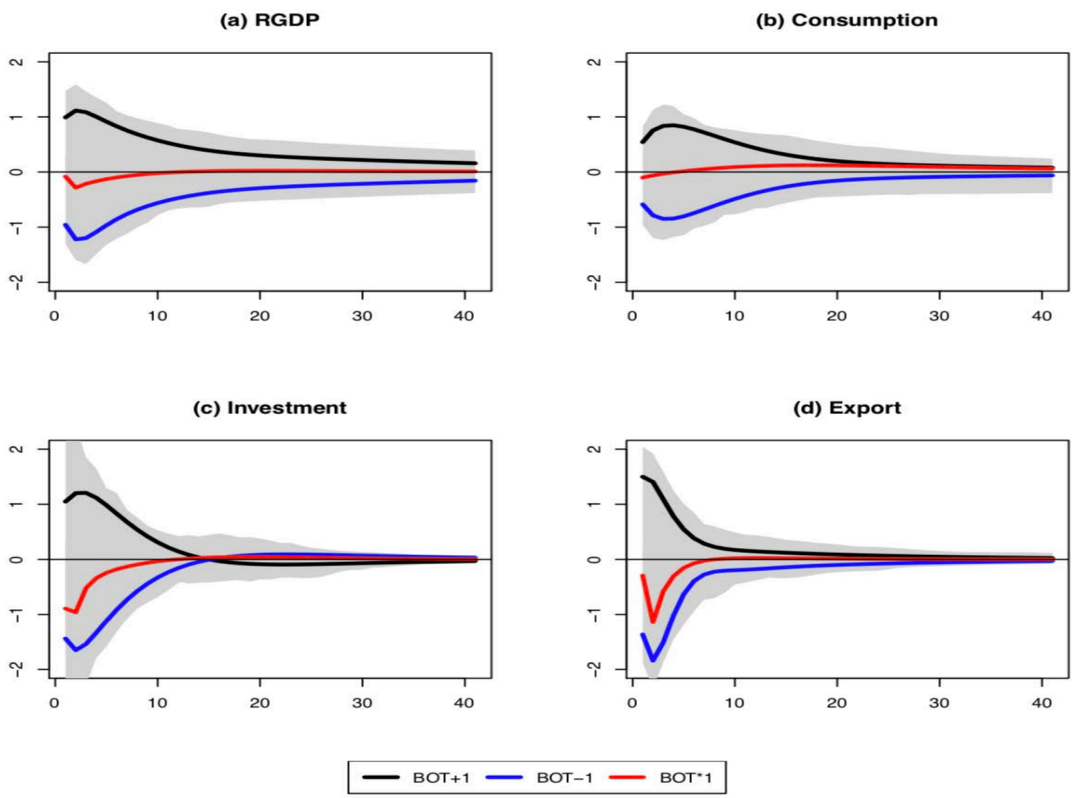
- Significant impacts on real activities
- But no observable difference between short-run and long-run components

Financial uncertainty



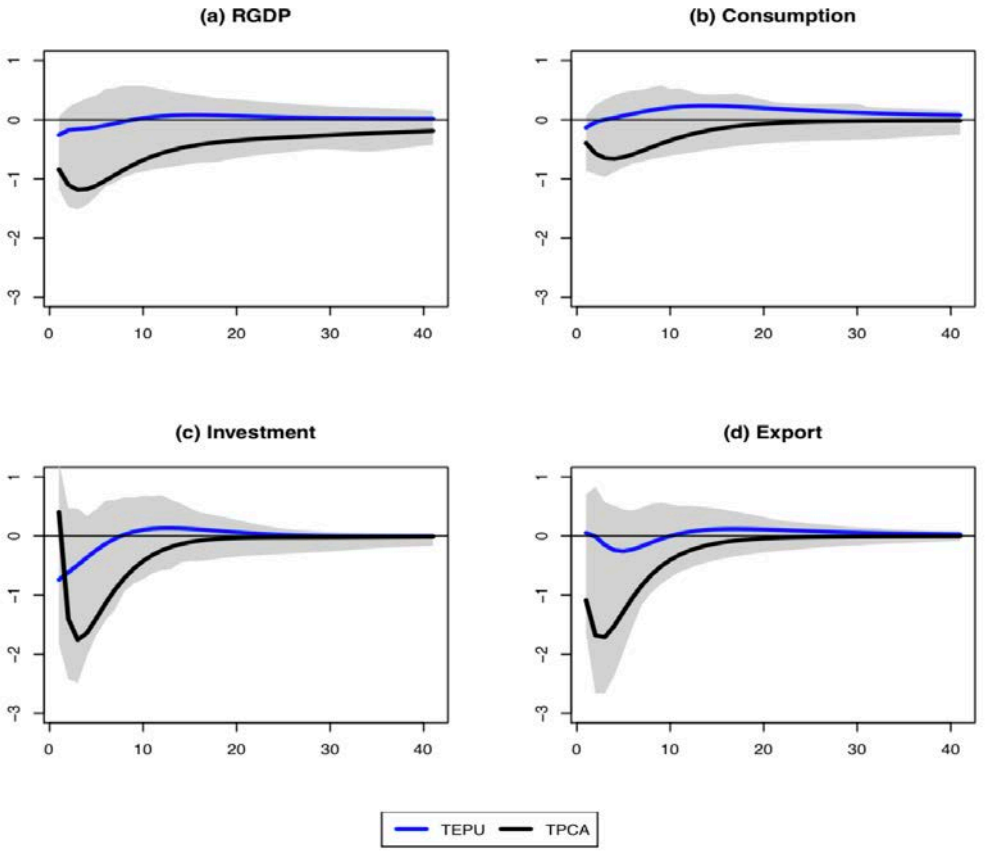
- The effect of Thai financial uncertainty occurs more gradually than the macro one

Upside/Downside uncertainty



- Upside uncertainty is expansionary while downside uncertainty is contractionary
- Sudden impact, in line with macro uncertainty

Policy uncertainty and Broad measure

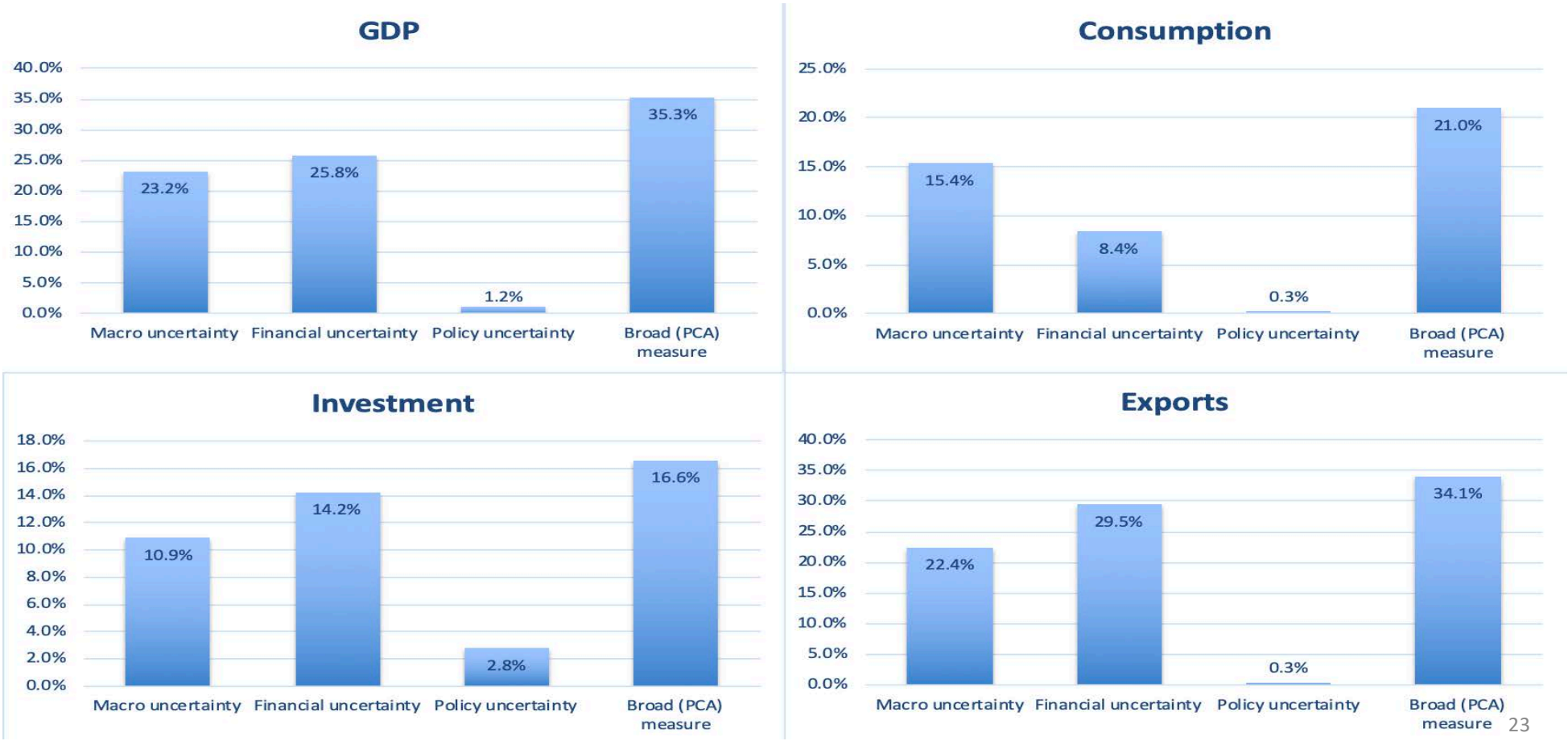


- Policy uncertainty appears to deliver relatively small impact on the Thai economy
- Real activity declines significantly following an aggregate uncertainty shock

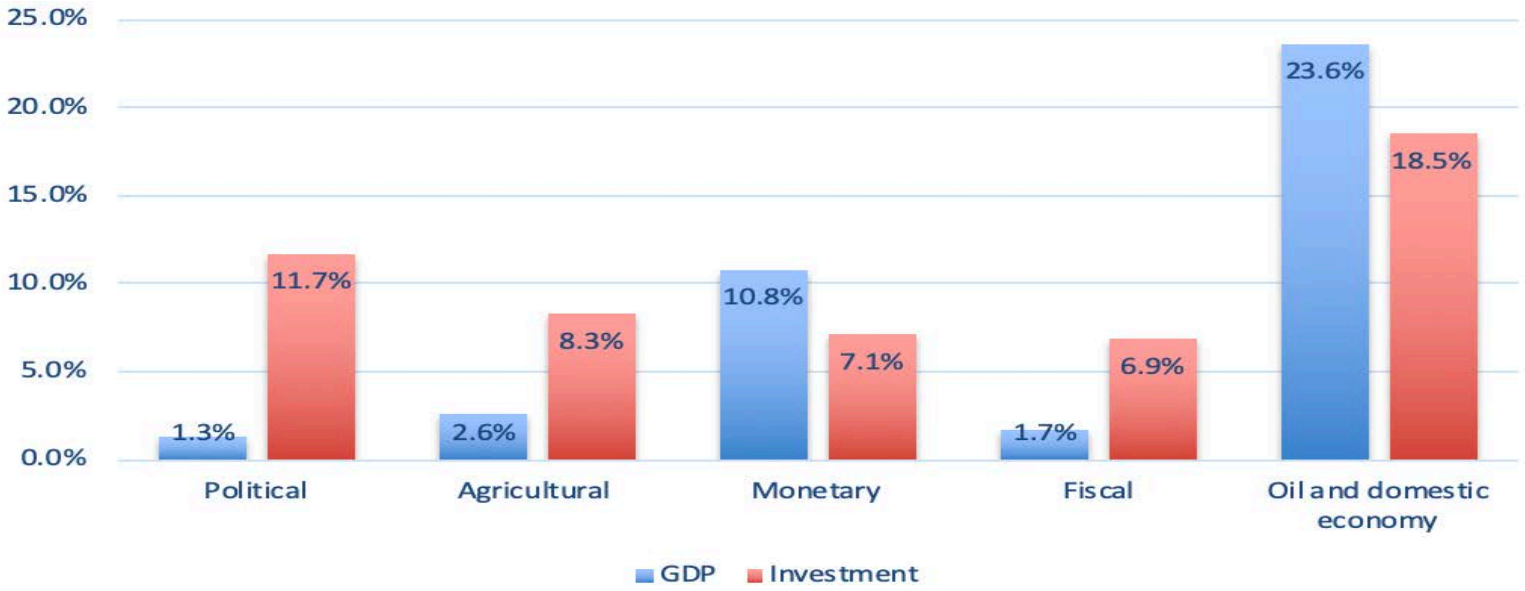
Key takeaways so far…

1. The impact of Thai uncertainty shocks on real activity is contractionary
2. There are some important differences in the dynamic responses of real activity to the various uncertainty proxies, in terms of persistence
3. With the exception of the TEPU, all other shocks decrease investment and exports by approximately 1.5 percent, and consumption by 0.5 percent. The decline in overall RGDP is about 1 percentage point

Quantitative importance of uncertainty in Thai business cycles: Variance Decomposition (after 4 quarters)

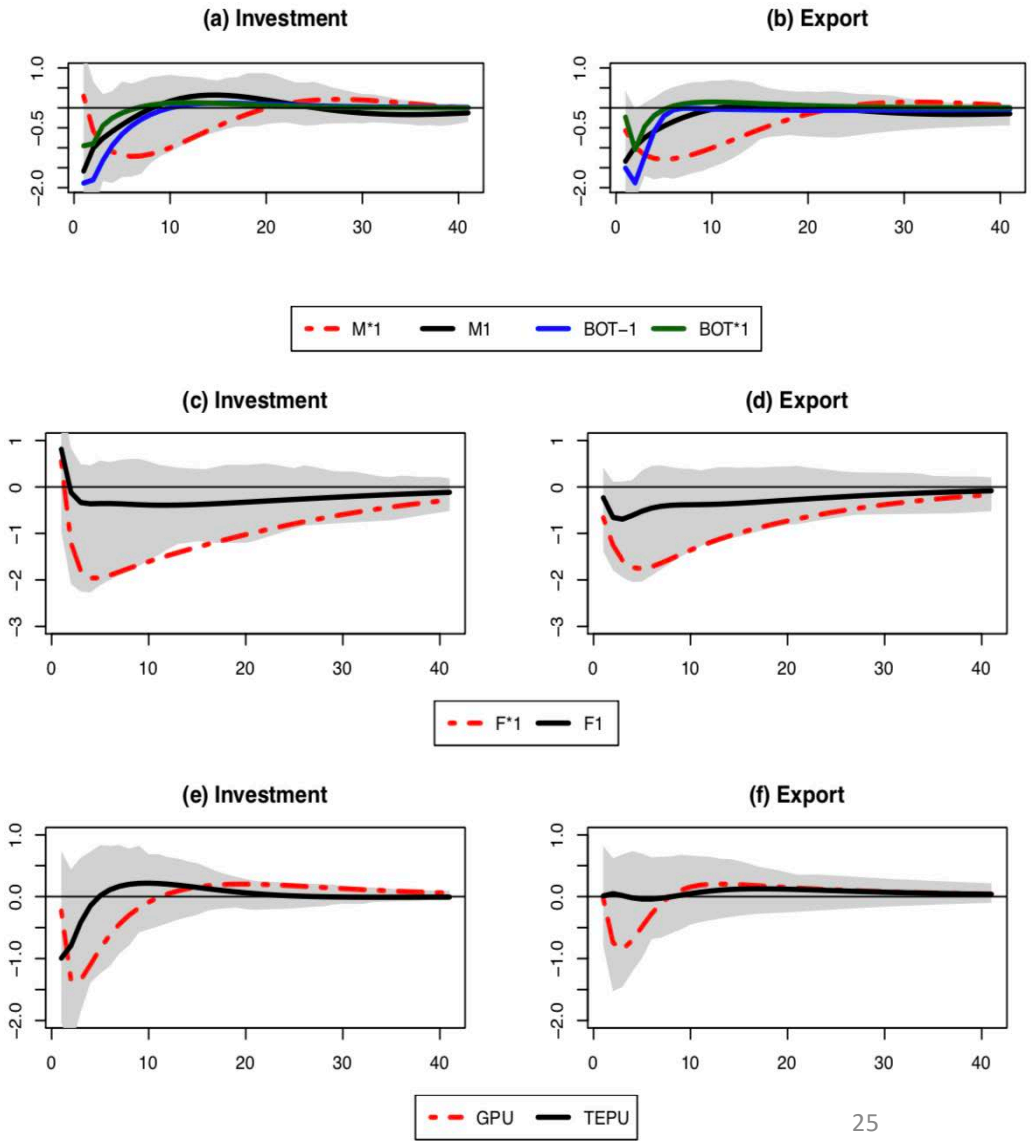


Domestic policy uncertainty: Variance decomposition (after 4 quarters)



Role of global economic uncertainty

- Dynamic impact of all foreign shocks are all significant and large, particularly for the US financial uncertainty measure
- The effects of Thai macroeconomic uncertainty are largely independent from US macroeconomic uncertainty.
- Once the US financial uncertainty shock is added to the VAR, the effect of the Thai financial uncertainty shock declines substantially. This implies that financial uncertainty which drives contractions in the Thai economy are mostly imported from the US.
- While the impact of the TEPU on economic activity remains quite marginal, the effect of global economic policy on the Thai economy is relatively large



Concluding remarks

1. Uncertainty plays a significant role in explaining Thai business cycles
2. Source of uncertainty also matters
   - Different measures of uncertainty may depict very different contributions for the macro dynamics
3. Macroeconomic uncertainty is predominantly driven by country-specific shocks
4. Large spillovers of policy and financial uncertainties from abroad