



French Nowcasts of the US Economy during the Great Recession: A Textual Analysis

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ABSTRACT

In an interdependent world, agents make forecasts about other economies as well as their own. This paper examines the nowcasts made by the French Central Bank and the French business community of the US economy during the Great Recession. Textual analysis is used because quantitative forecasts are not available. The results indicate that the French agents understood the general trends of the US economy during this period.

Key words: US economy, French nowcasts, textual analysis

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1. Introduction

Economists have devoted considerable efforts to analyze agents' expectations, which usually refer to the individuals' own economy. However, in a world that is economically interconnected, what is happening in other countries is also of concern to these individuals.

This is especially true when it concerns the level of activity in the world's largest economy, the United States. Consequently, it is of interest to know how foreigners viewed economic conditions in the United States during the Great Recession of 2007-2009. In particular, we will determine whether, in real-time, the French Central Bank and the French media correctly understood the economic conditions of the United States as they were occurring, during this period. Nowcasting is the term that has been applied to forecasting or monitoring current economic conditions.

We do not have any quantitative nowcasts about the US economy that were made by French agents or institutions and must, therefore, rely on interpretations of qualitative statements that appeared in government publications or in the media.¹ We use textual analysis to interpret these statements and then use a scoring method that is explained below to generate quantitative nowcasts. This procedure enables us to evaluate the accuracy of the statements that were made about the US economy.

While textual analysis is an established methodology that has been used extensively in other academic sectors such as sociology and philosophy, it is relatively new to economics. Particularly in forecasting, the analysis of qualitative information allows for greater transparency

¹ Although the ECB did issue quantitative forecasts about the US economy, the Banque de France did not.

about the intuition behind quantitative forecasts. Despite being a new research tool in economics, there already are a number of studies that indicate its usefulness.

No quantitative forecasts of the US economy were made during the Great Depression of the 1930s, but there were a considerable number of qualitative statements about the current and expected future economic conditions. These statements were transformed into quantitative data and then evaluated. The agents correctly understood the real-time economic conditions that prevailed during the Great Depression but also made overoptimistic statements about what they expected would happen in the future. (David, Goldfarb, and Stekler, 2005; Mathy and Stekler, 2017). Similarly, there have been analyses of forecasts derived from qualitative statements made during the Great Recession of 2007-2009. Lundquist and Stekler (2011) examined business economists' statements about economic conditions and showed that they failed to predict the recession. Stekler and Symington (2016) used textual analysis to analyze the minutes of Federal Open Market Committee (FOMC) meetings during the Great Recession. They showed that the FOMC examined a considerable amount of real-time data that enabled them to interpret current conditions but did not enable them to predict the recession in advance. These studies all show that it is possible to use qualitative statements, transform them into quantitative forecasts, and then determine their accuracy.

This paper provides a new application for this method by extending it to an analysis of foreigners' interpretations of the US economy as expressed in their publications and language. In particular, we ask whether French economic agents had an accurate understanding of the conditions of the United States' economic in real time during the Great Recession (December 2007-June 2009). We use a methodology similar to that of the existing literature to analyze qualitative statements included in publications from the Banque de France and a newspaper,

Challenges, that is similar to the *Wall Street Journal*. We reviewed publications released between 2008 and 2010 that discussed the conditions of the US economy.

This paper makes two significant contributions to the field. First, this paper presents an international perspective that had never previously been studied. Furthermore, given the empirical results that we obtain, it shows that foreign economic agents can correctly assess the business conditions of their trading partners. This is vital given the globalization of the world's economies. Second, we have extended the use of textual analysis by showing that the scoring method that was used to evaluate US forecasts can be also be employed on an international scale across different languages.

The next section presents the French qualitative data that we use. This is followed by a section that explains the methodology for converting these statements about the US economy into quantitative nowcasts. We then compare the French forecasts with the actual performance of the US economy and present our results and conclusions.

2. Data

The qualitative data, that cover the years of the Great Recession (2008-2010), were obtained from statements included in various publications of the Banque de France and articles contained in the newspaper, *Challenges*. The Banque de France publications were the annual reports and speeches released by the bank between 2008 and 2010. Articles that appeared in *Challenges*, a weekly bipartisan business newspaper, were analyzed if they included any references to the state of the US economy. Using this textual analysis, words that described the condition of the US economy were then selected to use as the qualitative data for this study. Ultimately, around thirty-two words were chosen from each publication that suggested positive,

negative, or neutral conditions of the US economy at that time. The list of words and their English translations can be found in Tables A1 and A2 of the Appendix.

3. Methodology

The methodology transforms the qualitative statements into quantitative scores. Based on the statements contained in the publications, the particular words that were selected were then coded (scored) to refer to the varying degrees of optimism or pessimism about the US economy's condition. More specifically, they were scored on an index that runs from +1 to -1.5, with gradations of $\frac{1}{4}$.² For example, words that indicate good performance have a score of +1; lower positive scores were assigned to words that reflect a lower level of positive economic activity. Similarly, if the words suggested a weakening of economic activity, a score of $-\frac{1}{4}$ was assigned. The scores became more negative if the statements reflected a further deterioration of the US economy with those indicating a crisis receiving a score of $-1\frac{1}{2}$. Tables 1 and 2 present these words and scores associated with the statements of the Banque de France and *Challenges*, respectively.

Each statement was scored and tabulated in the time period when it was made. The chronologically ordered sequence of these scores created two times series- one for the Central Bank the other for the newspaper articles. These two series which are quantitative transformations of the qualitative statements were evaluated by comparing them with the historical US GDP growth rates that occurred between 2008 and 2010. (These GDP data are presented in Table A3 of the Appendix).

² The scoring system is similar to the one developed by Goldfarb et al. (2005) and used by Stekler and Symington (2016) and Mathy and Stekler (2017). Based on comments of Ericsson (2016), the negative numbers of this paper are larger in absolute value than those of the earlier studies.

4. Results

Figures 1 and 2 present the time series of the Banque de France and the *Challenges* index scores, respectively, along with the US GDP growth rates for the period 2008Q1 to 2010 Q4. Over this period, the US economy underwent a tremendous change- from growing 2.8% in the second quarter of 2008 to declining by more than 5% in late 2008 and early 2009 and then recovering.

The scores are derived from statements about economic conditions, and we can illustrate how these changes in the direction of the US economy are reflected in the words that were used during this time period. Words used to describe the economy in the second quarter of 2008 include “une hausse” (increase) and “plus soutenu”.(pick up), while comments about the fourth quarter of 2008 include “baisse”(downgrade), “la dégradation” (degradation), and “ralentir”(slacken). The first quarter of 2009 was described by “la crise (crisis), “les risques” (risks), and “abaissement (downgrade).” The negative words are clearly associated with the sharp decline in activity that can largely be attributed to the collapse of Lehman Brothers in September of 2008.

The Great Recession ended in July 2009, and there was a visible upturn in US GDP growth. The French words associated with this period were, “sortie de récession,” “augmente,” “un rebond,” and “une reprise.”³ Following this upturn, the US showed a steady rate of positive growth throughout 2010. Words chosen from this time period were, “stable,” “la croissance,” “la fragilisation,” “une amélioration,” and “une vive remontée,”⁴.

A comparison of the curves in Figures 1 and 2 shows that the scores associated with the statements of both the French Central Bank and the newspaper articles display patterns that are

³ English translations: “exit the recession,” “improve,” “a rebound,” and “a recovery.”

⁴ English translations: “stable,” “growth,” “fragility,” “an improvement,” and “sharp rise.”

very similar to that of the US growth rate. The only difference is that the scores associated with the statements of the Central Bank are relatively more consistent than those from *Challenges*.⁵ Moreover, these scores were similar to the scores that Stekler and Symington (2016) obtained in their analysis of the statements contained in the minutes of the meetings of the Federal Open Market Committee.⁶ These results indicate that both the Banque de France and the French business community had a clear real-time understanding of developments that were occurring in the US economy, i.e. the nowcasts were accurate.

5. Robustness Checks and Caveats

There is a possibility that our method has what can be called a “connotation bias”, i.e. that English translations of French words offer a different connotation than the one intended, or that words are defined differently across the two cultures. In order to check for this possibility, we applied the same methodology to Banque de France statements regarding the state of the French economy for the year 2008. The index scores were consistent with the historical French GDP data.⁷ This analysis indicates that the language French central bankers used to describe their own economy is consistent with the language they used to describe the US economy, thus allowing the scoring method used in the United States to be used despite the language differences. (See Table A4.

There is one caveat that must be mentioned. All of the statements that appeared in the newspaper, *Challenges*, are true nowcasts for they were in a weekly business newspaper that reported on events as they were occurring in real-time. However, as we have noted, some of the Central Bank assessments were contained in annual reports that explained economic conditions that had occurred throughout the year. Strictly speaking these are not true nowcasts. Thus, the

⁵ The correlation between the scores of the Central Bank and US growth rates was 0.75; between the *Challenges* scores and the growth rates it was 0.65.

⁶ The correlations were 0.72 and 0.77.

⁷ These results are available from the authors.

statements in the newspaper are a more accurate real-time representation of French agents' views of the US economy.

6. Conclusions

We present our conclusions at two levels. Specifically, we have shown that French central bankers and economic agents accurately described the state of the United States' economy between 2008 and 2010. More generally as a methodology, we have again demonstrated the value of combining textual analysis of qualitative statements with the conversion of that information into a quantitative measure. Moreover, this methodology can even be applied to situations where a foreign observer using her language analyzes the economy of another country.

7. References

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Appendix

Table A1: Relevant Banque de France Words and English Translations

French	English
Une bonne tenue	Good performance
Une vive remontée	Sharp rise
Une reprise	Recovery
La croissance	Growth
Sortie de récession	Exit the recession
Augmente	Improve
Une hausse	Increase
Une amélioration	Improvement
Plus soutenir	Pick up
Un rebond	Rebound
Renouer	Renew
Incertain	Uncertain
Stable	Stable
Stabiliser	Stabilize
Les inquiétudes	Worries
Faible	Weak
La fragilisation	Fragility
Les risques	Risks
Ralentissement	Slowdown
Ralentir	Slacken
Abaissement	Downgrade
Les turbulences	Turbulences
Diminuer	Diminish
Propagation rapide	Rapid spread (of weakness)
Endettement	Indebtedness
Fortement reculer	Strong fall
Forte baisse	Strong fall
La dégradation	Degradation
La faillite	Bankruptcy
La récession	Recession
La crise	Crisis
L'effondrement	Collapse

Table A2: Relevant Newspaper Words and English Translations

French	English
Progresser fortement	Strong growth
Le redressement	Recovery
La croissance	Growth
Progresser	Grow
Rachat	Redemption
La reprise	Recovery
Indicateurs positifs	Positive indicators
Une hausse	Increase
Signes de reprise	Signs of recovery
Encourageant	Encouraging
Améliorer	Improve
Rassurent	Reassuring
Rebondir	Rebound
Incertitude	Uncertainty
Stabilisation	Stabilization
Bases solides	Solid footing
Fragilité	Fragility
Un affaiblissement	Weakening
Les risques	Risks
Les inquiétudes	Worries
Les signes troublants	Troubling signs
Ralentir	Slacken
Faiblesse	Weak
Les turbulences	Turbulences
Les sérieux défis	Serious challenges
Les préoccupations croissants	Growing concerns
Les pertes grandissantes	Huge losses
Fortement ralentir	Slacken strongly
Plonger	Plunge
La détérioration	Deterioration
Baisse	Fall
La faillite	Bankruptcy
La récession	Recession
Déprimé	Depressed
Le marasme	Slump
La crise	Crisis
L'effondrement	Collapse
L'intensification de la crise	Intensification of the crisis

Table 1: Scoring Index and Associated Words from Banque de France Qualitative Publications

Outlook	Assessment	Score	Recurring Words Used
Optimistic	Good Performance	+1	Une bonne tenue ; une vive remontée
	High Growth	+3/4	Une reprise ; la croissance
	Some growth	+1/2	Sortie de récession ; augmente ; une hausse
	Improvement	+1/4	Une amélioration ; plus soutenir ; un rebond ; renouer
Neutral	Uncertain	0	Incertain ; stable ; stabiliser
	Weakening	-1/4	Les inquiétudes ; faible ; la fragilisation ; les risques
	Slowdown	-1/2	Ralentissement ; ralentir ; abaissement
	Turbulences	-3/4	Les turbulences ; diminuer ; propagation rapide ; endettement
	Strong fall	-1	Fortement reculer ; forte baisse ; la dégradation
	Recession	-1 ¼	La faillite ; la récession
Pessimistic	Crisis/Collapse	-1 ½	La crise ; l'effondrement

Table 2: Scoring Index and Associated Words from Challenges Qualitative Publications

Outlook	Assessment	Score	Recurring Words Used
Optimistic	Recovery	+1	Progresser fortement ; le redressement
	High growth	+3/4	La croissance ; progresser ; rachat ; la reprise
	Positive indicators	+1/2	Indicateurs positifs ; une hausse ; signes de reprise ; encourageant
	Improvement	+1/4	Améliorer ; rassurent ; rebondir ;
Neutral	Uncertain	0	Incertitude ; stabilisation ; bases solides
	Troubling signs	-1/4	Fragilité ; un affaiblissement ; les risques ; les inquiétudes ; les signes troublants
	Slowdown	-1/2	Ralentir ; faiblesse
	Growing concerns	-3/4	Les turbulences ; les sérieux défis ; les préoccupations croissants
	Large losses	-1	Les pertes grandissantes ; fortement ralentir ; plonger ; la détérioration ; baisse
	Recession	-1 ¼	La faillite ; la récession ; déprimé ; le marasme
Pessimistic	Crisis/Collapse	-1 ½	La crise ; l'effondrement ; l'intensification de la crise

Table A3: Economic Quarter and Associated Historical US GDP Growth Rate

Economic Quarter	Historical GDP Growth Rate
2008.1	1%
2008.2	2.8%
2008.3	-0.5%
2008.4	-6.3%
2009.1	-5.5%
2009.2	-0.7%
2009.3	2.2%
2009.4	5.6%
2010.1	2.7%
2010.2	1.7%
2010.3	2.6%
2010.4	3.1%

Figure 1: Time Series of Historical GDP Growth Rates and Banque de France Index Scores in United States, 2008.1-2010.4

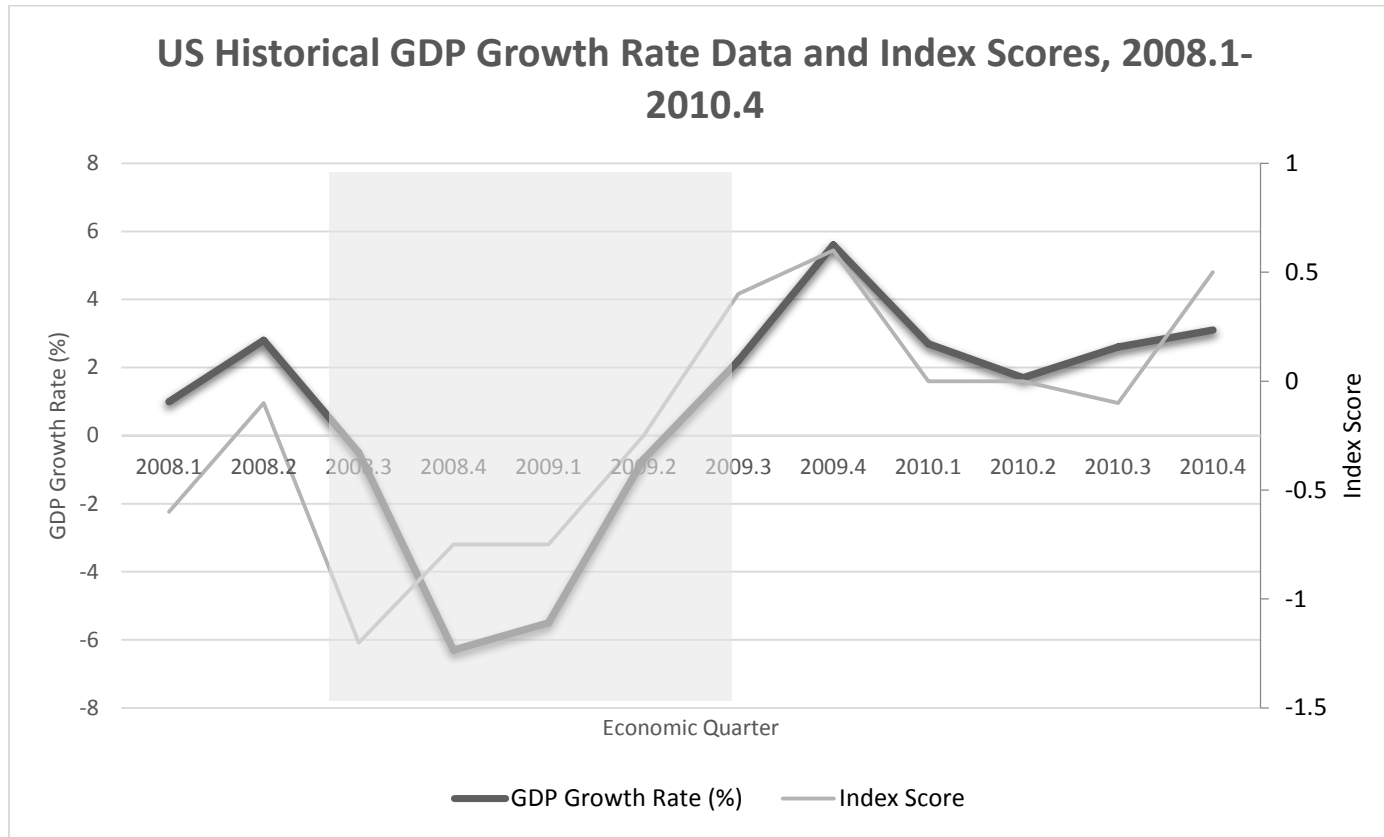


Figure 2: Time Series of Historical GDP Growth Rates and Newspaper Index Scores in United States, 2008.1-2010.4

