

Implications Of Basel III For Capital, Liquidity, Profitability, And Solvency Of Global Systematically Important Banks

Jacques Préfontaine, Ph.D., Université de Sherbrooke, Canada

ABSTRACT

The objective of this paper is to study the profitability and solvency implications of the proposed Basel III capital and liquidity requirements in the global banking context. The intent is to improve our understanding on how the Basel III capital and liquidity requirements impact upon the functioning of global systematically important banks (GSIBs), and how this knowledge could prove to be useful in answering questions of policy relevance like financial stability in economics. A longer-term perspective is taken in order to link capital and liquidity requirements with the notion of “systemic risk” within the evolution of the international financial and monetary system. Of special interest is the interaction between macroeconomic policy - including monetary, exchange rate and combined micro-macro-prudential policy within the setting of present-day Basel III regulatory and supervisory reforms. More specifically, the paper addresses two related issues: first, it studies and presents several financial indicators that GSIBs disclose; second, it examines how these same indicators could be related to GSIBs’ profitability and solvency.

Keywords: Global Banking Regulation; Market Discipline; Systemic Risk; Global Systematically Important Banks

1. INTRODUCTION

The objective of this paper is to study the profitability and solvency implications of the proposed Basel III capital and liquidity requirements in the global banking context. The intent is to improve our understanding on how the Basel III capital and liquidity requirements impact upon the functioning of global systematically important banks (GSIBs), and how this knowledge could prove to be useful in answering questions of policy relevance like financial stability in economics. A longer-term perspective is taken in order to link capital and liquidity requirements with the notion of “systemic risk” within the evolution of the international financial and monetary system. More specifically, the paper addresses two related issues: first, it studies and presents several financial indicators that GSIBs disclose; second, it examines how these same indicators could be related to GSIBs’ profitability and solvency.

Following this introductory section, the paper is structured as follows: the conceptual background to the study is presented in the second section. Third, the research methods used in this study are described. In the fourth section, the empirical results of the analysis are presented and analysed. In the final section, the preliminary conclusions of the study are drawn; also, the limits of the study are discussed, and areas of further study are suggested.

2. CONCEPTUAL BACKGROUND

In two recent speeches, Caruena (2012) and Mahapatra (2012) both examined the possible conflict in banking between shareholder value and «Basel’s» vision of financial stability and safe banking. Caruena (2011) also discussed the Basel III reform and the new challenges it posed for supervisors, risk managers and auditors. Cechetti (2011), Tarullo (2011) and finally Ingves (2011) explained how the proposed international agenda for financial regulation would contribute to improve the safety and soundness of the financial system. Macklem (2012) illustrates

in Figure 1 how the Financial Stability Board (FSB) will coordinate the financial-reform policy cycle within G-20 countries.

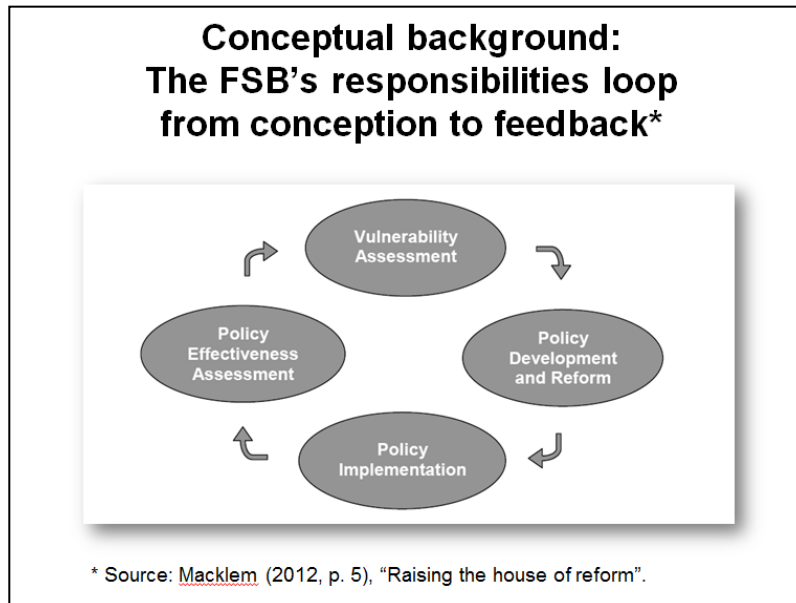


Figure 1: FSB Coordination of the Financial-Reform Policy Cycle

Gauthier (2011) notes that the new bank capital and liquidity requirements proposed in Basel III should contribute to reduce the frequency of financial crises. In particular, higher standards of liquidity would help banks become more resilient in periods of financial stress. The importance of global liquidity and its international repercussions have been recently reiterated by Carney (2011). His views draw heavily on the recently published report on global liquidity prepared by a group of the Committee on the Global Financial System (2011). Recently, Caruana explained how to build a more resilient financial system. His thoughts are summarized in Table 1.

Table 1: The Basel III Reform Programme-Implementation

Enhanced Basel II + Macroprudential overlay = Basel III	
<p>Microprudential framework (Enhanced Basel II):</p> <ul style="list-style-type: none"> • Increase quantity and quality of capital • Adequate risk coverage (for trading book, counterparty credit risk, securitisation) • Enhanced risk management and disclosure • Global liquidity standards 	<p>Macroprudential framework:</p> <ul style="list-style-type: none"> • Address stability over time (procyclicality) <ul style="list-style-type: none"> • Countercyclical capital charges • Capital conservation rules for stronger capital buffers • Dynamic provisioning • Address stability at each point in time (system-wide approach) <ul style="list-style-type: none"> • Specific treatment for systemically important banks: systemic capital charge • Leverage ratio

* Source: Caruana (2012, p. 14), “Building a resilient financial system”.

Mersch (2011) explained why he believes that Basel III will provide regulators in Luxembourg and elsewhere with standard empirical measures of liquidity risk: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR) providing them with a tool kit that can help to mitigate funding and market liquidity risk. He reports that while a slight negative effect on output is not disputed, the adoption by banks of higher liquidity

requirements like the NSFR leads to an approximate reduction in output volatility by 1%. Overall this suggests that prudent liquidity controls would have a beneficial effect on the real economy. In a recent analysis, of a global liquidity event, DeBelle (2011) explained how the action by the ECB, together with the Fed through the provision of the US dollar swap facility, should alleviate some of the funding tensions for European banks. In effect, provided that they have appropriate collateral, European banks should be able to meet their liquidity needs in the period ahead in euros, and in US dollars. The author observed that Australian banks are not seeing the same sort of stresses as are present for some of the European banks.

In light of the possibility of unwanted and unforeseen fluctuations in global liquidity and their international repercussions, and also the fact that the BCBS (4 November 2011) has only recently issued its final rules for systematically important banks, it now seems appropriate to re-examine the adequacy of the proposed Basel III liquidity requirements. The G-SIBs report provides an assessment methodology and the additional loss absorbency requirement. The additional loss absorbency requirements will range from 1% to 2.5% of Common Equity Tier 1 (CET1) depending on a bank’s systemic importance with an empty bucket of 3.5% CET1 as a measure to discourage banks from becoming even more systematically important.

Given the above analysis and the growing importance of financial risk management by GSIBs in particular and by banks in general, it appears that a possible managerial response would be to consider the net benefits of meeting, or even exceeding, the proposed Basel liquidity and capital requirements. Notice here that the present standards are under review by the BCBS (2010). The point being made here is that adopting more stringent “private” liquidity and capital requirements, especially for designated G-SIBs, would lessen the recourse to central bank “official” liquidity and the need to provide “official” capital . As the CGFS (2011) global liquidity report states: “Policy responses, in the form of official liquidity, to global liquidity call for a consistent framework that considers all phases of global liquidity cycles, countering both surges and shortages. Measures to prevent unsustainable booms in private liquidity like liquidity requirements are linked with micro- and macro prudential policies as well as the financial reform agenda.”

3. METHODOLOGY

This section presents several financial indicators that GSIBs disclose. The purpose is to examine how these same indicators could be related to GSIBs’ profitability and solvency given recent fluctuations in global economic activity and in global liquidity and their international repercussions. The proposed analysis benefits from the fact that the BCBS (4 November 2011) has issued its final rules for twenty-nine (29) global systemically important financial institutions (G-SIFIs). This allows an examination of the proposed Basel III capital and liquidity requirements using the FSB-BCBS-29-G-SIBs-sample which is presented in Table 2.

Table 2: The FSB-BCBS G-SIBs Sample Composition

1. Bank of America	US	16. Société Générale	FR
2. Bank of New York Mellon	US	17. Deutsche Bank	GER
3. Citigroup	US	18. Commerzbank	GER.
4. Goldman Sachs	US	19. Unicredit Group	IT.
5. JP Morgan Chase	US	20. UBS	SW.
6. Morgan Stanley	US	21. Crédit Suisse	SW.
7. State Street	US	22. Dexia	BELG.
8. Wells Fargo	US	23. ING Groep	NETH.
9. Royal Bank of Scotland	UK	24. Banco Santander	SPAIN
10. Lloyds Banking Group	UK	25. Nordea	SWEDEN
11. Barclay’s	UK	26. Mitsubishi UFJ	JAPAN
12. HSBC Holdings	UK	27. Mizuho FG	JAPAN
13. Crédit Agricole	FR	28. Sumitomo Mitsui FG	JAPAN
14. BNP Paribas	FR	29. Bank of China	PROC
15. Banque Populaire	FR		

By using each bank’s 2011 annual report or its latest available 2011 quarterly report, it was possible to obtain the following financial information:

- Market capitalization of shareholders’ equity (B US \$)
- Total assets (B US \$)
- Short-term credit ratings from Moody’s (M) and Standard & Poor’s (S & P)
- Long-term credit ratings from Moody’s (M) and Standard & Poor’s (S & P) for subordinated debt
- Tier I Common Equity Ratio (CER) as defined by the BCBS capital adequacy requirements (%)
- Liquidity measures: various ratios and metrics will be presented and explained in the text
- ROE (%) defined as latest 12-month figure (\$) of net income available to common shareholders’ divided by average shareholders’ equity (\$) during the same period

4. PRESENTATION AND ANALYSIS OF THE RESULTS

The results of the study are structured and analysed in three parts. First, Table 3 presents the market capitalization and total assets of each bank included in the G-SIBs sample. Second, both their short-term and long-term credit ratings are included in Table 4. Thirdly, each bank’s Tier 1 CER, liquidity measures or metrics, and ROE figures are presented in Table 5.

Table 3
G-SIBs’ Size Metrics (B US \$)

Presentation and analysis of the results		
G-SIBs	Mkt. cap. (B US \$)	Tot. Assets (B US \$)
1. Bank of America	\$ 58,6 B	\$ 2,129 B
2. Bank of New York Mellon	\$ 24,1 B	\$ 325 B
3. Citigroup	\$ 88,0 B	\$ 1,875 B
4. Goldman Sachs	\$ 55,0 B	\$ 927 B
5. JP Morgan Chase	\$125,4 B	\$ 2,266 B
6. Morgan Stanley	\$ 32,0 B	\$ 750 B
7. State Street	\$ 20,0 B	\$ 216 B
8. Wells Fargo	\$134,0 B	\$ 1,314 B
9. Royal Bank of Scotland	\$ 41,0 B	\$ 1,456 B
10. Lloyds Banking Group	\$ 32,0 B	\$ 1,446 B
11. Barclay’s	\$ 36,0 B	\$ 2,330 B
12. HSBC Holdings	\$155,0 B	\$ 2,716 B
13. Crédit Agrigole	\$ 11,4 B	\$ 2,471 B
14. BNP Paribas	\$ 66,3 B	\$ 2,504 B
15. Banque Populaire	N/A	\$ 1,496 B
16. Société Générale	\$ 16,7 B	\$ 1,553 B
17. Deutsche Bank	\$ 46,8 B	\$ 2,813 B
18. Commerzbank	\$ 6,7 B	\$ 870 B
19. Unicredit Group	\$ 27,3 B	\$ 1,235 B
20. UBS	\$ 47,0 B	\$ 1,558 B
21. Crédit Suisse	\$ 29,7 B	\$ 1 152 B
22. Dexia	\$ 11,7 B	\$ 536 B
23. ING Groep	\$ 41,6 B	\$ 1,663 B
24. Banco Santander	\$ 65,4 B	\$ 1,628 B
25. Nordea	\$ 31,5 B	\$ 931 B
26. Mitsubishi UFJ	\$ 70,8 B	\$ 2,689 B
27. Mizuho FG	\$ 33,0 B	\$ 2,058 B
28. Sumitomo Mitsui FG	\$ 39,0 B	\$ 1,770 B
29. Bank of China	\$152,2 B	\$ 1,830 B
Sample (29)	\$ 53,8 B	\$ 1,604 B

By examining the figures reported in Table 3 on banks’ market capitalization and total assets, it is possible to ascertain that a bank’s size in itself was important for it to be designated a “G-SIB” by the FSB-BCBS. For

instance, the market capitalization figures which average \$53.8 B US range from a low of \$6.7 B US (Commerzbank) to a high of \$155 US B (HSBC Holdings). In addition, the total assets figures which average \$1,604 B US range from a low of \$216 B US (State Street) to a high of \$2,813 B US (Deutsche Bank). Also notice in Table 3 that two relatively small US banks were nevertheless designated as being G-SIBs: Bank of New York Mellon and State Street. This is due to the fact that both banks play a global systematically important role in asset administration and management.

For all G-SIBs, both the short and long term debt credit ratings issued by Moody’s (M) and Standard & Poor’s (S & P) are presented in Table 4.

Table 4: G-SIBs’ Debt Credit Ratings

Presentation and analysis of the results		
G-SIBs	ST: M / S&P	LT: M / S&P
1. Bank of America	P-2 / A-2	Baa2 / BBB+
2. Bank of New York Mellon	P-1 / A-1	Aa2 / A+
3. Citigroup	P-2 / A-2	A3 / A-
4. Goldman Sachs	P-1 / A-2	A1 / A-
5. JP Morgan Chase	P-1 / A-1	Aa3 / A
6. Morgan Stanley	P-1 / A-2	A2 / A-
7. State Street	P-1 / A-1	A1 / A+
8. Wells Fargo	P-1 / A-1	A2 / A+
9. Royal Bank of Scotland	P-2 / A-2	A3 / A-
10. Lloyds Banking Group	P-1 / A-1	A1 / A
11. Barclay’s	P-1 / A-1	A1 / A
12. HSBC Holdings	P-1 / A-1	Aa2 / A+
13. Crédit Agricole	P-1 / A-1	Aa3 / A
14. BNP Paribas	P-1 / A-1+	Aa3 / AA-
15. Banque Populaire	P-1 / A-1	Aa3 / A
16. Société Générale	P-1 / A-1	A1 / A
17. Deutsche Bank	P-1 / A-1	Aa3 / A+
18. Commerzbank	P-1 / A-1	A2 / A
19. Unicredit Group	P-1 / A-1	A2 / A
20. UBS	P-1 / A-1	Aa3 / A
21. Crédit Suisse	P-1 / A-1	Aa2 / A
22. Dexia	P-1 / A-2	A3 / A-
23. ING Groep	NA / NA	A1 / A
24. Banco Santander	P-1 / A-1+	Aa3 / AA-
25. Nordea	P-1 / A-1+	Aa2 / AA-
26. Mitsubishi UFJ	P-1 / A-1	Aa3 / A+
27. Mizuho FG	P-1 / NA	NA / A
28. Sumitomo Mitsui FG	P-1 / A-1	Aa3 / A+
29. Bank of China	P-1 / A-1	A1 / A
Sample mean (ST), median (LT)	P-1.11/ A-1.17	A1 / A

By examining G-SIBs’ short term credit ratings, it is possible to see that they do not vary very much from one bank to another. In addition, for any given G-SIB, both Moody’s and Standard & Poor’s short term credit rating levels are comparable. The sample mean short term rating was P-1.11 (M) and A-1.17 (S & P); notice that for both M/S & P, a figure of 1.00 represents the highest possible rating. As of December 31st 2011, Bank of America had the lowest short term credit ratings; that is P-2 / A-2 issued respectfully by M/S & P. Nordea was issued the highest ratings in the sample at P-1 / A-1⁺. It is also possible to observe in Table 4 that the level of longer term subordinated debt credit ratings varied more than short term credit ratings within the G-SIB sample. The sample median for longer term credit ratings was A1 / A respectfully for M/S & P. Bank of America was issued the lowest long term ratings at Baa2 / BBB+ respectfully from M/S & P. As for short term credit ratings, Nordea also was issued the highest long term credit ratings by M/S & P; that is, Aa2 / AA- respectfully from M/S & P.

The figures which present the G-SIBs’ regulatory capital, liquidity and ROE metrics are shown in Table 5.

Table 5: G-SIBs' Capital, Liquidity and ROE Metrics

Presentation and analysis of the results			
G-SIBs	Tier I CER	Liquidity	ROE
1. Bank of America	9.86 %	EXL-TRF	0.04 %
2. Bank of NY Mellon	13.4 % (BI); 7.1 % (BIII)	?	7.50 %
3. Citigroup	11.8 %	?	6.50 %
4. Goldman Sachs	12.1 %	EXL	3.70 %
5. JP Morgan Chase	10.0 %; 7.9 % (BIII)	DLR	11.0 %
6. Morgan Stanley	13.0 %	?	8.50 %
7. State Street	12.0 % (BIII)	EXLCB	10.0 %
8. Wells Fargo	9.46 %; 7.49 % (BIII)	DLR	12.0 %
9. Royal Bank of Scotland	10.6 %	DLR, LB, NSFR	10.5 %
10. Lloyds Banking Group	10.8 %	DLR	- 5.30 %
11. Barclay's	11 % (B 2.5); 10 % (BIII)	DLR, LCR, NSFR	5.80 %
12. HSBC Holdings	10.6 %; 9.2 % (BIII)	?	12.6 %
13. Crédit Agricole	10.2 % (B 2.5)	DLR, EXL	3.43 %
14. BNP Paribas	9.6 % (B 2.5)	AGR	8.80 %
15. Banque Populaire	9.1 % (B 2.5)	DLR, EXL	5.70 %
16. Société Générale	9.0 % (B 2.5)	DLR, EXL	6.10 %
17. Deutsche Bank	9.5 % (B 2.5)	LR	9.80 %
18. Commerzbank	9.9 % (B 2.5)	EXL	2.20 %
19. Unicredit Group	8.74 %	?	- 16.0 %
20. UBS	17.5 %; 14.1 % (B 2.5)	LCR, NSFR, BIII	8.60 %
21. Crédit Suisse	10.7 % (B 2.5)	DLR, LCR, NSFR	6.00 %
22. Dexia	9.9 %	GG	- 67.4 %
23. ING Groep	9.6 %	DLR	8.70 %
24. Banco Santander	10.02 %	?	7.14 %
25. Nordea	9.2 %; 11 % (B 2.5 target)	LCR, LB	11.1 %
26. Mitsubishi UFJ	12.82 %	DLR	11.3 %
27. Mizuho FG	8.0 %	DLR, EXL	6.44 %
28. Sumitomo Mitsui FG	7.0 % (BIII)	DLR	9.90 %
29. Bank of China	9.92 %	?	19.15 %
Sample average, comments	10.41 %	No reported liq. metric: 7 banks	6.83 %

As can be observed in Table 5, all G-SIBs reported in their 2011 annual report at least one measure of Tier 1 Capital Equity Ratio (CER). Most banks (13) reported only the older Basel II version of Tier 1 CER. Many European banks (10) reported the newer Basel 2.5 June 2012 target of Tier 1 CER. Finally, only (7) G-SIBs reported on achieving Basel III 2013-2019 gradual targets of Tier 1 CER. As a crude measure of G-SIBs regulatory capital adequacy, the sample average Tier 1 CER was computed using the lowest Tier 1 CER (Basel II, Basel 2.5 or Basel III) figure reported by each bank. Using this computing method, the sample average Tier 1 CER reached a value of 10.41%.

Table 5 also reports on the liquidity measures or metrics reported by G-SIBs in their 2011 annual report. It can be observed in Table 5 that seven banks in the G-SIBs sample did not disclose any liquidity measure or metric. Of the remaining banks, thirteen used the Deposits to Liabilities Ratio (DLR) to illustrate their level of liquidity. Another subset of thirteen banks disclosed a variety of heterogeneous measures of liquidity. Just to illustrate and in order of presentation: excess liquidity is denoted EXL, excess liquidity at the central bank (EXLCB), liquidity balance (LB), available government reserves (AGR), liquidity reserves (LR), government guarantee (GG). Only five banks in the sample reported using the proposed Basel III short term liquidity coverage ratio (LCR) or the longer term net stable funding ratio (NSFR). Of these, four banks reported their proposed LCR measures; four reported their proposed NSFR measures; only three banks reported both their proposed Basel III, LCR and NSFR measures.

The annual ROE ratio was used in Table 5 to study the profitability of each bank composing the G-SIBs sample. By observing the ROE metrics, it can be observed that individual bank profitability varied from a loss of - 67.4% (Dexia) to a gain of 19.15% (Bank of China) during 2011. For all banks, the ROE metric averaged 6.83%. In

the complete G-SIB sample, fifteen banks earned a ROE of less than 8% per year; six banks had a ROE between 8 to 10%, and only eight banks earned a ROE above 10%.

It is generally believed that the G-SIBs’ capital, liquidity and ROE metrics shown in Table 5 can also be used by regulators to measure financial strength, and the level of liquidity and solvency risk. Because they are relatively inexpensive and readily available, analysts, investors and bank financial managers often use these same Tier 1 CER, liquidity and ROE metrics to track and evaluate a bank’s overall financial performance. For example, Ackermann (2012), as shown in Figure 2 in the text, makes use of his bank’s Tier 1 CER, liquidity and ROE metrics in order to illustrate how Deutsche Bank strives to balance these key performance indicators over time.

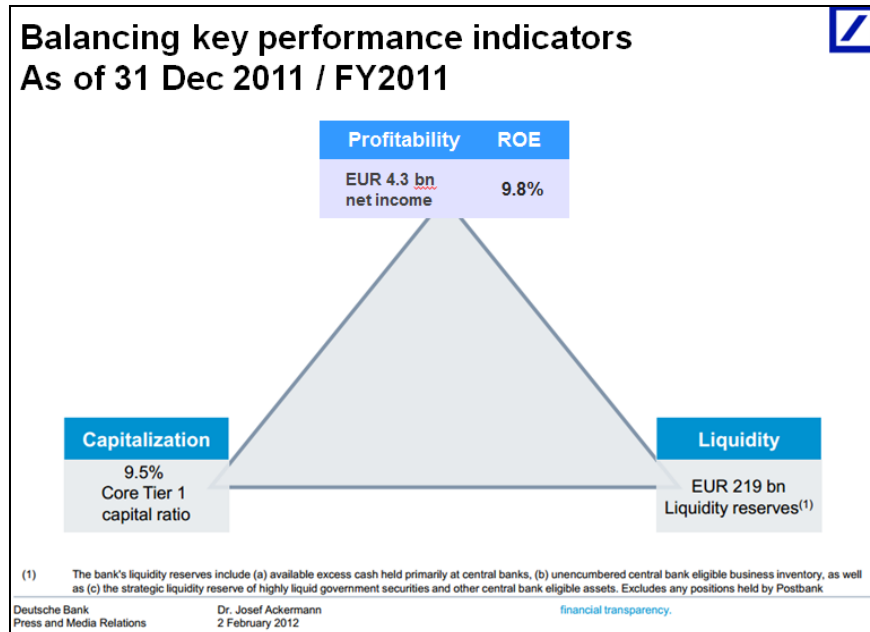


Figure 2: In Search of Balance

5. DISCUSSION AND CONCLUSION

The objective of this paper was to study the profitability and solvency implications of the proposed Basel III capital and liquidity requirements in the global banking context. The intent was to improve our understanding on how Basel III capital and liquidity requirements impact upon the functioning of global systematically important banks (GSIBs), and how this knowledge could prove to be useful in answering questions of policy relevance like financial stability in economics. More specifically, the paper addressed two related issues: first, it studied and presented several financial indicators that GSIBs disclosure; second, it examined how these same indicators could be related to GSIBs’ profitability and solvency.

The results presented in this paper indicate that banks that were designated as GSIBs generally shared a set of common characteristics like having relatively important levels of total assets and market capitalization. GSIBs were also found to have been issued relatively high short term credit ratings; however, the level of long term credit ratings differed much more between GSIBs. The analysis also revealed that the study of GSIBs’ regulatory capital and liquidity adequacy was complicated by the fact that the capital and liquidity metrics disclosed by many GSIBs were often incomplete and heterogeneous. Thus, it became difficult to evaluate if the proposed Basel III capital (from 2013 to 2019) and liquidity requirements (from 2015 to 2018) will be met or exceeded during their respective phase-in timetable. The results also indicate that GSIBs’ profitability was found to be generally low in 2011 since ROE averaged only 6.83%. In fact, only 10 banks (or 15) out of the 29 GSIBs sample generated a satisfactory ROE profitability ratio in 2011; that is, higher than +/- 10% (or +/- 8%). The preliminary results presented in the study seem to indicate that the size characteristics, the credit ratings and the capital, liquidity and profitability metrics

selected here could also be used by regulators to rapidly evaluate a GSIB's financial strength, and its level of exposure to liquidity and solvency risks. As recently illustrated by Yang and Tsatsoronis (2012), using a GSIB's ratio of market value of equity to book value of equity (MVE/BVE) could also be informative. Finally, because they are relatively inexpensive to gather and readily available, financial analysts or investors, as well as bank financial managers, often use the same or comparable metrics as those suggested here to track, evaluate and benchmark a bank's overall financial performance.

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Data availability: The data used in this study can be obtained from public sources.

AUTHOR INFORMATION

Jacques Préfontaine, Ph.D., is Professor of Finance at Faculté d'Administration of Université de Sherbrooke in Canada, and Desjardins Chair in managing sustainable development. His professional, teaching and research interests have focused on financial institutions management, risk management, financial disclosure and corporate social responsibility. E-mail: jacques.prefontaine@usherbrooke.ca

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NOTES