Bank capital, dividends and management compensation

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* The views expressed here are mine, not necessarily those of the Bank for International Settlements.
Equity as foundation for lending

Annual changes in assets, equity and debt for a large European bank

1999–2015, in billions of euros

Graph 3

Scatter plot showing how much of the change in assets is accounted for by changes in debt and equity, respectively. Annual changes in billions of euros are shown for large European bank (1999-2015).

Sources: S&P Capital IQ; BIS calculations.
Bank capital as foundation for lending

- Equity $\rightarrow$ foundation of the building

- Leverage $\rightarrow$ height of the building
Sutyagin house
Sutyagin house
Sound banks lend more

Some stylised facts on bank leverage

Figure 1

Cost of funding

Non-equity funding

Lending

\[ y = 2.46 + 0.0331x \]
\[ R^2 = 0.16 \]

\[ y = 11.1 - 0.112x \]
\[ R^2 = 0.12 \]

\[ y = 10.7 - 0.138x \]
\[ R^2 = 0.14 \]

1 The panels represent scatter plots between the average level of leverage for a group of 105 international banks and selected bank-specific indicators: average cost of funding, average growth rate of non-equity financing; average annual growth rate of lending.

Sources: BankScope; authors’ calculations.

Gambacorta and Shin (2016, JFI forthcoming)
Retained earnings and accumulated dividends for 90 euro area banks

Total retained earnings and accumulated dividends of a group of 90 euro area banks

In billions of euros

Graph 1

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</tr>
</thead>
<tbody>
<tr>
<td>Retained earnings</td>
<td>279</td>
<td>190</td>
<td>234</td>
<td>301</td>
<td>227</td>
<td>250</td>
<td>296</td>
<td>310</td>
<td>348</td>
</tr>
<tr>
<td>Cumulative dividends from 2007</td>
<td>37</td>
<td>78</td>
<td>87</td>
<td>110</td>
<td>140</td>
<td>155</td>
<td>177</td>
<td>196</td>
<td>223</td>
</tr>
</tbody>
</table>

By country, in 2015

<table>
<thead>
<tr>
<th>DE</th>
<th>ES</th>
<th>FR</th>
<th>IT</th>
<th>NL</th>
<th>Other EA¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>92</td>
<td>38</td>
<td>109</td>
<td>37</td>
<td>47</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53</td>
<td>32</td>
<td>28</td>
<td>30</td>
</tr>
</tbody>
</table>

DE = Germany; ES = Spain; FR = France; IT = Italy; NL = Netherlands; Other EA = Other euro area.

¹ Austria, Belgium, Finland, Greece, Ireland and Portugal.

Sources: S&P Capital IQ; BIS calculations.
Two questions to ponder

- Who is the principal in the principal-agent relationship?

- Who are the interested parties?
Stickiness of CEO compensation and dividends

\[
\left( \frac{\text{dividends}}{\text{equity}} \right)_t = \alpha \left( \frac{\text{dividends}}{\text{equity}} \right)_{t-1} + \text{controls} + \epsilon_t
\]

\[
\left( \frac{\text{compensation}}{\text{equity}} \right)_t = \beta \left( \frac{\text{compensation}}{\text{equity}} \right)_{t-1} + \text{controls} + \epsilon_t
\]
“Stickiness” coefficient of top executive compensation and dividends, 2004-2015

Notes: The bars show the estimated size of the autoregressive parameter for total compensation of the firm top executive and dividends as a share of firms’ total equity.  
1 Total compensation of the firm top executive.  
2 Banks are all depository and non-depository credit institutions, security and commodity brokers, dealers, exchanges, and services.  
3 Other financial firms are insurance carriers, insurance agents, brokers and service, real estate, holdings and other investment offices.  
4 Non-financial firms are firms in all sectors excluding banks and other financial firms.  

Source: BIS calculations based on data from S&P Capital IQ.

Deininger, Gambacorta and Shin (in progress)
Stickiness of top executive compensation and dividends: normal times vs crisis period

Notes: The bars show the estimated size of the autoregressive parameter for total compensation of the firm top executive and dividends as a share of firms' total equity. 1 Total compensation of the firm top executive. 2 Banks are all depository and non-depository credit institutions, security and commodity brokers, dealers, exchanges, and services. 3 Other financial firms are insurance carriers, insurance agents, brokers and service, real estate, holdings and other investment offices. 4 Non-financial firms are firms in all sectors excluding banks and other financial firms.

Source: BIS calculations based on data from S&P Capital IQ.

Deininger, Gambacorta and Shin (in progress)
Total CEO compensation and debt growth

<table>
<thead>
<tr>
<th>Banks²</th>
<th>Other financial firms³</th>
<th>Non-financial firms⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
<td><img src="image3" alt="Graph" /></td>
</tr>
</tbody>
</table>

Notes: ***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively. ¹ Total compensation of the firm top executive. ² Banks are all depository and non-depository credit institutions, security and commodity brokers, dealers, exchanges, and services. ³ Other financial firms are insurance carriers, insurance agents, brokers and service, real estate, holdings and other investment offices. ⁴ Non-financial firms are firms in all sectors excluding banks and other financial firms.

Source: BIS calculations based on data from S&P Capital IQ.

Deininger, Gambacorta and Shin (in progress)
Dividends and debt growth

<table>
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<tr>
<th>Banks¹</th>
<th>Other financial firms²</th>
<th>Non-financial firms³</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Graph of banks]</td>
<td>![Graph of other financial firms]</td>
<td>![Graph of non-financial firms]</td>
</tr>
</tbody>
</table>

y = 0.0933**x + 3.5188
R² = 0.4495

y = -0.0004x + 3.0328
R² = 0.0001

y = 0.0047x + 4.4831
R² = 0.0118

Notes: ***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively. ¹ Banks are all depository and non-depository credit institutions, security and commodity brokers, dealers, exchanges, and services. ² Other financial firms are insurance carriers, insurance agents, brokers and service, real estate, holdings and other investment offices. ³ Non-financial firms are firms in all sectors excluding banks and other financial firms.

Source: BIS calculations based on data from S&P Capital IQ.

Deininger, Gambacorta and Shin (in progress)
The elasticity of total compensation to total equity

Elasticity of total compensation\(^1\) to total equity

<table>
<thead>
<tr>
<th>Banks(^2)</th>
<th>Other financial firms(^3)</th>
<th>Non-financial firms(^4)</th>
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</thead>
<tbody>
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Notes: The graph shows the elasticity of total compensation to total equity for average values of firms’ total equity. The parameter estimates are based on a non-linear model specification controlling for firm-specific characteristics.

1 Total compensation of the firm top executive. 2 Banks are all depository and non-depository credit institutions, security and commodity brokers, dealers, exchanges, and services. 3 Other financial firms are insurance carriers, insurance agents, brokers and service, real estate, holdings and other investment offices. 4 Non-financial firms are firms in all sectors excluding banks and other financial firms.

Source: BIS calculations based on data from S&P Capital IQ.

Deininger, Gambacorta and Shin (in progress)
Reaction of total compensation and dividends to a 1% drop in real GDP growth

Notes: The graphs show impulse responses (y-axis) from a 1 percent drop in real GDP growth after time t (x-axis) on top executives' total compensation and firms' dividends in banks and non-financial companies. The grey shaded areas illustrate 90 percent confidence bounds based on 1,500 Monte-Carlo simulations. 1 Banks are all depository and non-depository credit institutions, security and commodity brokers, dealers, exchanges, and services. 2 Total compensation of the firm top executive. 3 Non-financial firms are firms in all sectors excluding banks and other financial firms.

Source: BIS calculations based on data from S&P Capital IQ.
Two concluding questions

- Who is the principal in the principal-agent relationship?

- What motivates the stakeholders?
Sample of the 90 euro area banks for Graph 1