Research Questions

- How does the board of directors network affect boardroom decisions?
  - Is CEO compensation affected by board connections?
  - Is CEO pay-performance sensitivity affected by board connections?
  - Is CEO turnover affected by board connections?
What do we learn from this paper?

- In firms whose directors are more central in the network:
  - CEO pay is higher
  - CEO pay is less sensitive to firm performance
  - CEO turnover is less likely to occur.
  - Well-connected directors are more likely to be awarded more directorships in the future
Data

- Five different sets:
  - IRRC-Directors data set
    - Director characteristics for all firms in S&P 1500 index from 1996-2004
  - ExecuComp
    - CEO compensation data
  - Compustat and CRSP
    - Firm characteristics
  - IRCC-Governance data set
    - Corporate governance variables

- Total obs.: 9889. Unique obs.: 1914
**Network Measures (1)**

- **Degree:**

  Number of direct links that each director has to other director in the network. For year $t$:

<table>
<thead>
<tr>
<th>Director</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>...</th>
<th>...</th>
<th>$N_t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$N_t$</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
Network Measures (2)

- **Closeness**:
  - A refined measure of the importance of the links that each director has.
  - Variable that assigns weights to each connection.
  - “Central” directors under this notion have very short communication paths to all other directors in the network.
Network Measures (3)

- **Betweenness**: 
  - Estimate of the importance of non-direct links to network centrality.
  - Importance of each director in linking directors to each other
    - Betweenness(director k) > Betweenness(director i)
    - Betweenness(director k) > Betweenness(director j)
Results (1)

- **CEO Compensation:**
  
  \[ CEO\ Compensation_{it} = \beta_0 + \beta_1 Connectedness_{it} + \beta_2 Controls_{it} \]

- **Firm-level controls:**
  - Value of assets
  - Current and future profitability: Tobin’s Q, Stock Returns, Total Debt to Assets, Firm Age
  - Fixed effects: year, industry and state
  - CEO characteristics: Age, Tenure, Gender
  - Governance characteristics

- **Output:**
  - Other things equal, a CEO of a firm in the top quintile of connected firms receives a salary (total compensation) 11% (14%) higher than that of a CEO of a firm in the bottom quintile of connected firms

- **Endogeneity concerns:** Run fixed effects and instrumental variable test.
Results (2)

- CEO Pay-Performance Sensitivity:

\[ W_{jt} = \alpha + \beta_1 \times R_{jt} + \beta_2 \times \text{Connectedness}_{jt} + \beta_3 \times R_{jt} \times \text{Connectedness}_{jt} + \gamma \times \text{Control}_{jt} + \delta \times R_{jt} \times \text{Control}_{jt} + \sum_{i=1}^{50} \theta_i \times \text{Industry}_i + \sum_{t=1997}^{2004} \mu_t \times \text{Year}_t + \varepsilon_{jt} \]

- Pay-performance sensitivity:

\[
\frac{\partial W}{\partial R} = \beta_1 + \beta_3 \times \text{Connectedness} + \delta \times \text{Control} \\
\frac{\partial W}{\partial R} = \beta_1 + \beta_3 \times \text{Connectedness} + \beta_5 \times F(\text{Assets}) + \beta_7 \times F(\text{Volatility}) + \beta_9 \times F(\text{TDA})
\]

- Output:

  Other things equal, pay-performance sensitivity of well connected CEOs is 21% lower than that of a CEOs of firms whose boards are not well connected.
Results (3)

- CEO Compensation: Logistic regression
  \[ CEO \text{ Turnover}_{it} = \beta_0 + \beta_1 \text{Connectedness}_{it} + \beta_2 \text{Controls}_{it} \]

- Firm-level controls:
  - Value of assets
  - Current and future profitability: Tobin’s Q, Stock Returns, Total Debt to Assets, Firm Age
  - Fixed effects: year, industry and state
  - CEO characteristics: Age, Tenure
  - Governance characteristics

- Output:
  - Other things equal, a CEO in a firm in the top quintile of connected firms is 24.5% less likely to be fired than a CEO in the bottom quintile of connected firms.
In firms whose directors are more central in the network:

- CEO pay is higher
- CEO pay is less sensitive to firm performance
- CEO turnover is less likely to occur.
- Well-connected directors are more likely to be awarded more directorships in the future