On monetary policy and stock market anomalies

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Presentation outline

- Motivation
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Motivation

Related Literature and Contribution

Data and Methodology

Results

Robustness checks

Conclusions
Recent global financial crisis has highlighted the importance of monetary policy for financial markets.
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Transmission of monetary policy via:
Bank lending channel and balance sheet channel.
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Transmission of monetary policy via:
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Financial press and analysts closely follow central bankers to extract info regarding monetary policy stance
Well established literature documenting the negative impact of monetary tightening on stock market returns
Related Literature

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- Jensen and Johnson (1995): Dummy approach
  Thorbecke (1997) and Patelis (1997): VAR approach
  Bernanke and Kuttner (2005): Futures on Fed Funds rate

- Very few studies examining the impact of monetary policy shocks in the cross-section of stock returns

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Motivation 2

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Zhang’s (2005) necessary condition for value premium to be explained by financial frictions: "As value stocks are typically in distress, if a credit crunch comes along, these stocks will do very badly and hence are risky"
Effects on asset prices

- Using a DDM, monetary tightening increases the *discount rate* and lowers *expectations on future cash flows* (Smirlock and Yawitz, 1985)
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- Recent contribution: Risk premia are affected by monetary policy shocks (Bernanke and Kuttner, 2005), possibly in a different manner in the cross-section of stocks:

\[
P_{i,t} = E_t \left[ \sum_{j=1}^{\infty} \left( \frac{1}{1 + r_f + r_p} \right)^j D_{i,t+j} \right]
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- Bernanke-Kuttner untested conjecture: Investors potentially *overreact* to monetary policy shocks
Our contribution

- Document the differential impact of monetary policy shocks on portfolios’ returns constructed on the basis of size, value proxies and stocks’ past performance

Reveal the multi-period impact of monetary policy shocks on these portfolios’ returns

Examine the stability over time of the relationship between monetary policy shocks and stock returns

Link these findings to the traditional and more recent transmission channels suggested in the literature
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Monthly returns of portfolios constructed on the basis of: Size, CF/P, D/P, B/M, E/P, Long-term reversal ($t - 60$ to $t - 13$), Short-term reversal ($t - 1$) and Momentum ($t - 12$ to $t - 2$)
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Econometric Methodology

- Macro-based Vector Autoregression model of order $p$:

$$y_t = \sum_{i=1}^{p} \Phi_i y_{t-i} + \varepsilon_t$$

where the endogenous variables’ vector is:

$$y_t = [ipn \ inf \ gcom \ dfedm \ strongin \ return]'$$
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- Candelon and Lutkepohl (2001) Chow-type test for structural stability
## Initial period impulse responses: 1967-2007

<table>
<thead>
<tr>
<th>Sorting criterion for portfolios</th>
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<tbody>
<tr>
<td></td>
<td>Impulse Response</td>
<td>Av. Returns (p.a.)</td>
</tr>
<tr>
<td>Book-to-market value</td>
<td>-0.51 ** (0.24)</td>
<td>10.01%</td>
</tr>
<tr>
<td>Cash flow-to-price</td>
<td>-0.46 * (0.25)</td>
<td>10.18%</td>
</tr>
<tr>
<td>Earnings-to-price</td>
<td>-0.48 * (0.26)</td>
<td>10.16%</td>
</tr>
<tr>
<td>Dividend-to-price</td>
<td>-0.51 ** (0.25)</td>
<td>11.39%</td>
</tr>
<tr>
<td>Market value</td>
<td>-0.66 ** (0.28)</td>
<td>14.85%</td>
</tr>
</tbody>
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### Initial period impulse responses: 1967-2007

<table>
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<tr>
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<th>Smallest size quintile</th>
<th>Highest size quintile</th>
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<tr>
<td></td>
<td>Impulse Response</td>
<td>Av. Returns (p.a.)</td>
</tr>
<tr>
<td>Lowest book-to-market value ratio quintile</td>
<td>-0.65 * (0.36)</td>
<td>8.12%</td>
</tr>
<tr>
<td>Highest book-to-market value ratio quintile</td>
<td>-0.84 ** (0.25)</td>
<td>19.44%</td>
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<td>Impulse Response</td>
<td>Av. Returns (p.a.)</td>
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<tr>
<td>Returns during months t-60 to t-13</td>
<td>-0.80 ** (0.29)</td>
<td>16.26%</td>
</tr>
<tr>
<td>Returns during months t-12 to t-2</td>
<td>-0.71 ** (0.34)</td>
<td>1.48%</td>
</tr>
<tr>
<td>Returns at month t-1</td>
<td>-0.81 ** (0.32)</td>
<td>12.91%</td>
</tr>
</tbody>
</table>
Multi-period impulse responses: Growth vs Value

Panel A: Low book-to-market value decile portfolio

Panel B: High book-to-market value decile portfolio
Results: Multi-period impulse responses

Panel A: Small size and growth quintile portfolio

Panel B: Small size and value quintile portfolio

Panel C: Big size and growth quintile portfolio

Panel D: Big size and value quintile portfolio
### Panel A: 1967.01-1982.12

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<td></td>
<td>Impulse Response</td>
<td>Av. Returns (p.a.)</td>
</tr>
<tr>
<td>Book-to-market value</td>
<td>-0.78 * (0.40)</td>
<td>7.32%</td>
</tr>
<tr>
<td>Earnings-to-price</td>
<td>-0.84 ** (0.42)</td>
<td>7.11%</td>
</tr>
<tr>
<td>Market value</td>
<td>-1.01 ** (0.50)</td>
<td>17.52%</td>
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</table>

### Panel B: 1983.01-2007.12

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<td>Book-to-market value</td>
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<td>11.81%</td>
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<td>-0.27 (0.33)</td>
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<td>-0.26 (0.32)</td>
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Robustness checks

- Cholesky decomposition based impulse responses
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- Alternative augmented VAR specifications to account for commonly used risk factors (Fama-French, Carhart, Chen-Zhang), e.g.

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y_t = [ipn \ inf \ gcom \ dfedm \ strongin \ xmark \ smb \ hml \ mom \ return]'  
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  -> evidence for bank lending channel
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There are lagged effects from monetary policy shocks
- Underreaction over time

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- Monetary policy transmission channels may become inactive in some periods