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EUROPEAN BUSINESS: OVERCOMING UNCERTAINTY, STRENGTHENING RECOVERY

TECHNICAL APPENDIX

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TECHNICAL APPENDIX

This appendix has three parts:

1. Survey questions

2. Robustness and informative tests

3. Detailed survey analysis

1. SURVEY QUESTIONS

As described in Box 1 in the main report, the survey was designed by the McKinsey Global Institute and conducted by an external provider. The 35 questions were:

Firm data

1. How many employees does your organisation have?

- O 1–9, 10–19, 20–49, 50–249, 250–999, >1,000

2. Please describe your role in your organisation. If your exact title is not listed, please choose the option that is closest to your role.

- O Chief Executive Officer or President (or equivalent)
- O Chief Financial Officer, Chief Operating Officer, or other "board-level" role
- O Vice-President[1]

3. If Vice-President, do you have the authority to make decisions about your company's investments?

4. How much revenue did your company generate last year? Please estimate your revenue in euros if you use another currency.

5. Was your company profitable last year?

6a. How have your annual revenues changed (on average) over the past three years?

- O Fallen by more than 10% per year
- O Fallen by 5–10% per year
- O Fallen by 2–5% per year
- O Fallen by 0–2% per year
- O Stayed the same
- O Grown by 0–2% per year
- O Grown by 2–5% per year
- O Grown by 5–10% per year

[1] For companies with fewer than 250 employees, interviews with executives at the vice-president level were terminated at this point.

- Grown by more than 10% per year

6b. How do you expect your revenue to change next year?

- Fall by more than 10%
- Fall by 5–10%
- Fall by 2–5%
- Fall by 0–2%
- Stay the same
- Grow by 0–2%
- Grow by 2–5%
- Grow by 5–10%
- Grow by more than 10%

7. In which industries does your company operate? (Choose one option that best applies, or that covers most of your operations)

- Manufacturing: Automotive and assembly
- Manufacturing: Consumer and packaged goods
- Manufacturing: High tech
- Manufacturing: Others
- Business, professional, scientific, and legal services
- Utilities (electricity, oil and gas, water supply, sewage, and waste management)
- Health care and pharmaceuticals
- Wholesale and retail trade
- Transportation, travel, and logistics
- Accommodation, food services, and entertainment/recreation activities
- Telecommunications, media, and information technology
- Financial and insurance services
- Construction and real estate activities
- Agriculture, forestry, and fishing
- Mining
- Other (please specify)

8. In which countries/markets does your company do business?

- Only local market/home country
- In two countries
- Several countries, but only in Europe
- Several countries, including some outside Europe

Questions about perception and impact of trends and scenarios:

9. The following are trends and changes that Europe is experiencing or predicted to experience in the coming years. What kind of impact do you think these trends and changes will have on your business over the next five years (very positive, moderately positive, neutral, moderately negative, very negative)?

Demographic and environmental

I. Aging populations

II. Increasing incoming migration

III. Rising inequality

IV. Increased digitisation and automation

V. Rise of emerging economies

VI. Climate change

Social and political

VII. Pressures against globalisation (e.g., protectionism)

VIII. Rise in populism

IX. Geopolitical disruption

X. Increased refugee populations

XI. Member states leaving the EU (e.g., Brexit)

10. The following are potential pathways for the future of the EU and the Eurozone.

a) Please indicate which of these scenarios you think are most likely to occur (rank the first and second most likely).

b) Without considering their likelihood of occurring, please indicate which of these scenarios you think would be most beneficial for your company (rank the first and second most beneficial).

I. EU and Eurozone erosion: Core countries exit both blocks, and both the EU and the Eurozone disband completely

II. Eurozone break-up, with the EU intact: Core countries exit the Eurozone, and all countries return to their national currencies. The EU maintains its current structure and levels of responsibility (with only the UK leaving the EU).

III. Eurozone shrinks, with the EU intact: Peripheral economies exit the Eurozone and return to their national currencies, while core countries retain the euro. The EU maintains its current structure and levels of responsibility (with only the UK leaving the EU).

IV. EU and Eurozone remain intact with current responsibilities: Both the EU and the Eurozone maintain their current structure and levels of responsibility, with core countries remaining in place (with only the UK leaving the EU).

V. EU responsibilities expansion: Both the EU and the Eurozone maintain their current structure, with core countries remaining in place (with only the UK leaving the EU). The EU gains new responsibilities and sets up new institutions such as common defence, external border protection, and partially common fiscal policy.

11. In 2016, the EU-28 experienced a GDP growth rate of 1.9%. As you look to the future, what average growth rate would you expect the EU to experience over the next five years? (Fill in a numbered response to one decimal place.)

Questions on perception towards the EU:

12. In general, how would you describe the impact of your country's membership in the EU on your business (very negative, moderately negative, neutral, moderately positive, very positive)?

13. If you had to choose, which of the following would you want?

- O "More Europe" (more policies set at the EU level)
- O "Less Europe" (more policies set by member states)

14. Please explain your level of support for the following current or potential EU-level policies and responsibilities (strongly oppose, oppose, neutral, support, strongly support, don't know).

I. Instituting an EU body to manage all migration to the EU under a common policy, rather than having member states define their own migration rules

II. Creating a common external border protection policy and enforcement body, and having member states fund it

III. Moving a large share of defence spending and personnel to an EU military force, and reducing the budgets and size of national forces

IV. Managing a Europe-wide law enforcement and stronger judicial system to consistently prevent and address high-level or international crimes, rather than solely delegating to national forces

V. Facilitating the efficient transfer and storage of personal data between national governments under a consistent set of policies, rather than using bilateral agreements between individual countries

VI. Regulating trade and negotiating trade deals collectively, rather than having each member state make its own trade deals

VII. Setting consistent wealth redistribution policies across borders, rather than having each country set its own rules for social security, unemployment insurance, tax policy, etc.

VIII. Defining common monetary policies and financial regulations, rather than having each country manage its own financial sector independently

IX. Defining common energy and environmental policies to manage costs and sustainability, rather than having individual countries define their own priorities

X. Prioritising, funding, and managing major infrastructure investments holistically, rather than leaving these decisions solely to individual nations

15. If you were able to define the priorities for EU policy makers, which of the following issues would you choose? Please rank the top three elements you would want the EU to prioritise in future plans.

I. Promoting defence and security of member states

II. Encouraging prosperity and convergence

III. Further freeing the movement of people and goods

IV. Protecting the democracy and legitimacy of member state governments

V. Engaging internationally to protect human rights outside the EU

VI. Promoting technological and digital leadership
VII. Enabling competitiveness
VIII. Liberalizing regulations
IX. Protecting consumers
X. Improving fairness and social inclusion within Europe
XI. Leading in sustainability and environmental stewardship
XII. Securing the European energy supply
XIII. Stabilizing the financial system
XIV. Increasing overall public-sector productivity and efficiency
XV. Other (please specify)

16. Please describe the impact that you think the following EU policies and plans have (or would have) on your business (very positive, moderately positive, neutral, moderately negative, very negative).

I. Single market for goods: Free movement of goods without tariffs and with harmonised regulation and standards
II. Single market for services: Free cross-border service activities and investment in service sector with increasing liberalisation, harmonisation of regulation
III. Unified currency: Single currency across 19 Eurozone member states
IV. People movement: Free movement of people across EU borders, notably employment/recruiting cross-borders
V. Banking union (plan): Common supervisory mechanism for all banks in EU to ensure improved protection for depositors and common rules for managing failing banks
VI. Energy union (plan): Fully integrated energy market within the EU and common regulations around climate action and energy efficiency
VII. Digital single market (plan): Better online access to digital goods and services across Europe; an environment where digital networks and services prosper; copyright reform

17. The following are commonly considered to be benefits and advantages of EU membership. Which of the following do you see as the most important or beneficial for your business? (Rank top three.)

I. Access to markets to sell goods/services
II. Access to cheaper and/or better preproduced goods or raw materials
III. Access to services needed for my business
IV. Access to talent (with the right skills and education)
V. Access to capital
VI. Access to investment opportunities
VII. Consistent regulations and unified standards
VIII. Low transaction costs including speed of transaction (e.g., improved cross-border supply chains, simplified payment)
IX. Stronger position in world affairs
X. More support in the fight against terrorism

XI. Support in tackling climate change

XII. Maintenance of peace and security across the EU

XIII. Access to and use of new technologies

XIV. Ease of doing business (overall competiveness)

XV. Freedom from corruption/rule of law

XVI. Other (please specify)

18. The following are commonly considered to be challenges of EU membership. Which of the following do you see as the most difficult and impactful on your business? (Choose top two.)

- O Limitations on borrowing and access to capital for loans
- O Exposure to European competition
- O Complex and restrictive regulations
- O Complex and burdensome regulatory processes
- O Inability to control individual country currencies (within Eurozone)
- O High taxes
- O Loss of national sovereignty
- O Limited transparency of decision making
- O Other (please specify)

19. Prior to his election as President of the European Commission in July 2014, Jean-Claude Juncker set ten key areas in which he wanted the EU to make a difference and deliver results during his time in office.

a) Please explain how well you think the EU has executed on this priority over the past three years (very unsuccessfully, unsuccessfully, neither successfully nor unsuccessfully, successfully, very successfully, don't know).

b) Please describe the impact the actions associated with this priority have had on your business (very negative, moderately negative, neutral, moderately positive, very positive, don't know).

I. "A new boost for jobs, growth and investment": includes "the investment plan for Europe", the "circular economy package", education reform, and other measures

II. "A connected digital single market": includes measures to "improve access for consumers and businesses to digital goods and services", "create growth-conducive conditions and a level playing field for digital networks and services", and to "maximise the growth potential of the digital economy"

III. "A resilient energy union with a forward-looking climate change policy": focuses on "energy security", "a fully integrated energy market", "energy efficiency", "decarbonizing the economy", "research"

IV. "A deeper and fairer internal market with a strengthened industrial base": includes establishing a "capital markets union", tax measures, "upgrading the single market", and a "labour mobility package"

V. "A deeper and fairer Economic and Monetary Union (EMU)": includes completing the EMU and establishing a "European pillar of social rights"

VI. "A reasonable and balanced free trade agreement with the United States": includes negotiations of the Transatlantic Trade and Investment Partnership (TTIP) with the United States

VII. "An area of justice and fundamental rights based on mutual trust": includes policies to enhance freedom, justice, and security, along with counterterrorism policies

VIII. "Towards a new policy on migration": includes short- and long-term measures related to all forms of migration into the EU from other regions

IX. "Europe as a stronger global actor": includes the "neighborhood", "development", and defence/security policies

X. "A union of democratic change": includes policies to increase EU openness, accessibility, and accountability

Questions about productivity and jobs

20. How do you expect the number of employees in your company to change three years from now, as compared to last year?

- O >30% fewer than last year
- O 10–30% fewer than last year
- O About the same
- O 10–30% more than last year
- O >30% more than last year
- O Don't know

21. If increase, why do you plan to increase headcount? (Check all that apply.)

I. To increase volume in current markets

II. To reach new markets

III. To deepen value chain depth

IV. To offer higher-value goods or services

V. Other reasons (please specify):

22. How do you expect revenue productivity (revenue per employee) for your company to change over the next three years? ("Slider" of options from "increase by >20%" to "decrease by >20%", plus "don't know".)

23. Where/how will you try to bring about productivity improvements? (Rank top three.)

I. Develop new products with higher customer value

II. Change the business model

III. Digitise operations

IV. Automate and/or redesign processes

V. Boost employee incentives and performance

VI. Use existing assets (capital/platforms) more efficiently

VII. Increase revenues on existing fixed capital/platform

VIII. Improve energy or resource efficiency

IX. Other (please specify)

Questions about investment:

24. How has your company's cash position (operating cash flow minus short-term and long-term capital expenditures) changed compared to three years ago?

- O Fallen by over 10%
- O Fallen by 3–10%
- O Stayed roughly constant
- O Grown by 3–10%
- O Grown by over 10%

25. If grown, why did your company increase its cash position? (Choose top two.)

- O Debt was excessive
- O Mandatory debt repayment
- O Saving for future investments
- O Building reserves for potential future crises
- O No appropriate places to spend
- O Other (please specify)

26. How do you expect your company's average annual investment in EU countries over the next three years to change, compared to last year? (Note: Investment is defined here as the purchase of any physical or tangible asset outside of normal operational spend [e.g., new machinery, buildings, etc.]. This excludes the purchase of financial assets [e.g., stocks, bonds] or corporate M&A.)

- O Fall by over 30%
- O Fall by 10–30%
- O Keep roughly constant
- O Grow by 10–30%
- O Grow by over 30%

27. Do you feel your business has made the appropriate level of investment in Europe over the past three years? (Note: Investment is defined here as the purchase of any physical or tangible asset outside of normal operational spend [e.g., new machinery, buildings, etc.]. This excludes the purchase of financial assets [e.g., stocks, bonds] or corporate M&A.)

- O Yes
- O No—too much investment
- O No—too little investment

28. What do you see as the main obstacles or challenges to investing in the EU? (Choose top three.) (Note: Investment is defined here as the purchase of any physical or tangible asset outside of normal operational spend [e.g., new machinery, buildings, etc.]. This excludes the purchase of financial assets [e.g., stocks, bonds] or corporate M&A.)

- O Internal funds needed to pay back debt
- O Need to keep cash on hand (e.g., for potential crises, future investment)
- O Higher/quicker returns from investment abroad
- O Higher/quicker returns from alternatives (e.g., M&A)

- Lack of public infrastructure
- Expected return below target (e.g., hurdle rate) or payback period too long
- Increased uncertainty about future environment
- Lack of appropriate external finance (terms, cost, etc.)
- Reluctance to take on risk
- Regulatory burdens
- Regulatory uncertainty
- Financial market pressure for short-term returns
- Lack of skilled personnel
- Lack of good investment opportunities
- Lack of internal funds (retained earnings)
- No need for new investment because have already invested
- Too little demand to invest
- Other (please specify)

29. The following are considered potential risks for the EU that could limit investment. Which of the following potential risks do you see as the biggest concerns that limit your investment in Europe? (Please pick top three.) (Note: Investment is defined here as the purchase of any physical or tangible asset outside of normal operational spend [e.g., new machinery, buildings, etc.]. This excludes the purchase of financial assets [e.g., stocks, bonds] or corporate M&A.)

I. New US policies affecting investment in the EU/changes to trade deals
II. "Hard Brexit" with Britain leaving the single market
III. Other countries (in addition to the UK) leaving the EU
IV. Political transitions in core EU countries
V. Rise in populism across Europe
VI. Stricter EU regulations
VII. Interest rate hikes
VIII. Another financial crisis or economic recession
IX. A real estate crisis
X. Energy price volatility
XI. Exchange rate volatility
XII. Threat of terrorist attacks
XIII. Extreme weather events
XIV. Other (please specify)

30. The following are potential EU policies or changes.

a) Which of the following policy categories would be most likely to cause you to raise investment in EU countries? (Pick top two.)

b) Within the categories chosen, which specific policies do you think would be most effective? (Pick up to two for each category.)

Accommodative monetary and fiscal policies:

I. Further extension of negative interest rates

II. Further extension of quantitative easing (QE)

III. Embarking on "helicopter money" (distribution of central bank money to households)

IV. Monetisation of budget deficits (using central bank money to finance government)

V. Restructuring of public debt, especially in Southern Europe

VI. Cancellation of public debt

VII. Other (please specify)

Additional economic stimulus and wealth redistribution

VIII. Larger central EU budgets and stimulus (e.g., 3% rather than 1% of GDP, e.g., for common defence budget, common unemployment scheme, etc.)

IX. More country-level fiscal stimulus in Germany and other member states

X. More country-level fiscal stimulus in Southern Europe

XI. Higher public investment without raising deficit limits

XII. Relaxing of past austerity policies

XIII. Fiscal redistribution from capital owners and high-income earners to lower-income earners

XIV. Development of a voluntary EU fund to restructure banks and unwind non-performing loans, using both public and private funding

XV. Other (please specify)

Reduced taxes and EU/government spend

XVI. Reduced central EU budgets, less EU-level stimulus, and lower taxes

XVII. Fiscal consolidation and austerity

XVIII. Tighter monetary policy and rising interest rates

XIX. Other (please specify)

Easier access to financing

XX. Further extension of financing packages for public, corporate, and SME investors like the European Strategic Fund for Investment

XXI. Easier access to financing for SMEs

XXII. Easier access to financing for corporations, e.g., risk capital (venture capital funding) or equity (e.g., Europe-wide equity markets)

XXIII. Tax exemption for foreign direct investment in EU countries running trade deficits

XXIV. Other (please specify)

Regulatory reform

XXV. Reform to product market regulation (e.g., relaxation of market access restrictions, price controls, public-sector ownership, product regulations) (optional: specify)

XXVI. Labour market reform (e.g., easier "hiring and firing" and more flexible wage bargaining)

XXVII. Easier access to land/more flexible building permissions

XXVIII. Other (please specify)

Regulatory clarity and stability

XXIX. EU-wide agreement and clarity on climate change/environmental regulation

XXX. Access to cheaper energy

XXXI. Political stabilisation and EU institutional reform

XXXII. Other (please specify)

Strengthening and connecting the workforce

XXXIII. New restrictions on immigration to slow down migrant movement

XXXIV. Relaxation on immigration regulations to increase freedom of movement

XXXV. Education reform to better prepare workers for employment

XXXVI. Incentives to encourage women and older populations to work

XXXVII. Cross-EU digital platform to match qualified job seekers to open positions

XXXVIII. Other (please specify)

Other EU policy changes

XXXIX. New free trade agreements

XL. Investment in digital technologies and services

XLI. Internal (public sector) productivity improvements

XLII. Online innovation platform to connect entrepreneurs and generate business ideas

XLIII. Active industrial policy (optional: specify)

XLIV. Other (please specify)

Other

XLV. Other (please specify)

31. How strongly do you agree with the following statements about the effectiveness of EU institutions (e.g., the European Commission) (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)?

a) EU institutions are very effective at making and managing policy

b) EU institutions are more effective than your country's national-level institutions at making and managing policy

32. Would you see a case for raising the level of EU public investment (i.e., EU spend)?

- O Yes, even if it means higher taxes
- O Yes, but only if it doesn't affect tax levels
- O No

33. If yes, in which of the following areas do you think there is a case for increased EU investment (i.e., EU spend)? Choose as many or as few as apply.

I. Physical infrastructure (e.g., roads, bridges, airports, rail lines)

II. Information and communications technology (ICT) infrastructure, including telecom

III. Energy and green investment

IV. Housing and urban development

V. Education

VI. Health care

VII. Research and development

VIII. Development of new industries (e.g., genomics, artificial intelligence, "Industry 4.0")

IX. Defence and security, including cybersecurity

X. Social inclusion (including gender equality)

XI. Other (please specify)

34. If yes, would you co-invest in any of these areas of potential EU investment?

- O Yes
- O No

35. Have you considered using or used investment from the European Fund for Strategic Investments ("Juncker plan")?

- O Yes
- O No

US and Chinese perspective on EU

For our interviews with US and Chinese companies, we asked the same questions about firm data, GDP growth expectations, attitudes towards trends and the European Union, obstacles to investment in the EU and investment risks, and EU policies conducive to raised investment (1, 2, 3, 7, 9, 10, 11, 28, 29, and 30).

Additionally, we asked these US and Chinese companies:

Which of the following has your company done, or does it plan to do? (Choose all options that apply.)

I. Invest in a European company

II. Invest in European infrastructure projects, real estate, etc.

III. Sell goods/services in Europe

IV. Purchase goods/services from Europe

2. ROBUSTNESS AND INFORMATIVE TESTS

We tested our survey results using traditional statistical tests of bias and did not find evidence of bias in our collected data. We also tested our data against economic theory, which provides a variety of stylised facts regarding firm performance that we hoped to see replicated in our survey data. The five stylised facts below were tested (based on unweighted data) and were found to hold in our survey:

a) Correlation between capital (future investment) and labour (future employment) inputs with output (future revenue)

Typically the product output of a company is the technical result of a production process combining capital and labour. Using a typical Cobb-Douglas production function, and taking the approximation that log(X) = growth rate of X, one should find that the expected growth in future revenue (output) is a linear function of expected growth in future capital stock and of future employment growth (labour), as well as total factor productivity growth. The coefficients of the linear function in turn approximate the technical ratio of labour and capital.[2]

We tested this relationship via regression analysis, using investment rate as a proportional factor of growth rate of capital; the relationship appears to hold and has the expected statistically positive sign for all sectoral splits, except for the primary sector, where the relationship between revenue growth and investment growth is not statistically significant. In our data, we also find that the elasticity of employment in the short term is typically an order of magnitude less than labour share, demonstrating that new inputs do not translate directly proportionately into future revenue growth over the next three years. This is a typical finding of firm-level production function estimates, and is also consistent with recent output gap measures for Europe and a recent McKinsey global survey that suggests that companies could increase production by 6 to 15 percent in the short term without hiring more staff.[3]

b) Correlation between past and future performance

In economics, Gibrat's law implies that growth opportunities are unbounded, so that future performance is independent of company size. In practice, size achieved in a sector by a company may reflect a company's capability to capture those growth opportunities more than its peers, so that we might expect future revenue growth opportunities (future performance) to be positively linked with size as a proxy for past performance. We test this via regression analysis, looking at future revenue expectations and current employment as a measure of size. Our data confirms a positive relationship, consistent with academic evidence.[4]

c) The level of globalisation of a firm influences its performance (future revenue growth)

There is typically a close link between a company's geographical scope and its future revenue growth; meta-analysis studies demonstrate that exporting firms tend to be more productive than domestic ones.[5] We test this in our Cobb-Douglas production function by adding a categorical variable measuring whether a firm markets its products or services domestically, abroad in one extra market, or abroad in a variety of foreign markets. We find that operating domestically is penalizing in manufacturing firms; companies that operate only in their domestic European market expect to see 11 percent less future revenue growth

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[2] Paul Douglas and Charles Cobb, "A theory of production", *American Economic Review*, volume 18, number 1, March 1928.

[3] *McKinsey Quarterly* Global Survey, March 2017.

[4] Timothy Dunne, Mark J. Roberts, and Larry Samuelson, "The growth and failure of US manufacturing plants", *Quarterly Journal of Economics*, volume 104, issue 4, 1989.

[5] Joachim Wagner, "International trade and firm performance: A survey of empirical studies since 2006", *Review of World Economics*, volume 148, issue 2, June 2012.

than peers who also focus on foreign markets. These findings are consistent with the European single market view that scale matters.

d) The presence of financial constraints, especially a challenging economic environment, systematically limits revenue growth-capture opportunities

One factor that could lead to a failure of Gibrat's law is that revenue growth can be affected by financial constraints, especially in the context of a difficult economic situation. Europe's last decade has been challenging, with some evidence of a credit crunch.[6] We approximate financial resources by the amount of cash flow available to companies. We find a statistically strong cross-sectional correlation of 0.47 between firms' historical growth in cash flow position and historical revenue growth in our survey data.[7]

e) Investment decisions are in line with expected economic behaviours

Various economic theories seek to explain how companies make investment decisions. The neoclassical model postulates that investments are dependent on the evolution of interest rates, for example, while the cash flow model emphasizes that investment decisions are more sensitive to cash evolution, and the accelerator model postulates that investment is a function of economic prospects. In practice, all models can fit the data.[8] We also sought to test a generalised model of investment behaviour; however, as interest rates are common to all firms, we cannot test the neoclassical view and rather test the prevalence of the two other models, by regressing investment decisions on cash flow evolution and revenue prospects. We found evidence of a positive correlation in our best-fit model between firms' future investment growth and historical cash flow position, and a smaller positive correlation with historical revenue.

3. DETAILED SURVEY ANALYSIS

What are the relationships, if any, between the responses to the range of questions in our survey? For example, do perceptions of global trends in the European business community have any relation to responses on future investment decisions? This section presents additional descriptive analytics and examples of the multivariable analyses we conducted in an examination of such possible relationships. We have used two major types of multivariate analyses: regression analysis, often used to test sample-wide, linear-type relationships, and machine learning–based discriminatory analyses (here, CHAID for Chi-square Automatic Interaction Detector), to uncover more segmented, non-linear relationships in the data. In general, we looked to see if the two types of analyses give the same results, with CHAID providing in-depth insights beyond typical linear approximations in regression settings.

As outlined in the main document, multivariate technique results are themselves sensitive to the underlying assumptions of well-behaved variables. For example, results may suffer from omitted variable bias; that is, there may be other variables affecting European company performance that we have not captured through our questionnaire. To the extent that they correlate with other variables picked up in our survey, their effect can be seen in the regression and can be wrongly attributed to the measured variables. A second source of risk is that the survey is only a snapshot in time and may not fully reflect the dynamics of company responses. A third caveat is that the variables are categorical in nature, which particularly impacts regression techniques, while CHAID works well with categorical variables. A last, usual caution is that most statistical techniques uncover correlation but not necessarily causality.

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6 Andrea F. Presbitero, Gregory F. Udell, and Alberto Zazzaro, "The home bias and the credit crunch: A regional perspective", *Journal of Money, Credit and Banking*, supplement to volume 46, number 1, February 24, 2012.

7 This is statistically significant at the 99th percentile.

8 See Richard W. Kopke, "The determinants of business investment: Has capital spending been surprisingly low?" *New England Economic Review*, January/February 1993.

We have tried to mitigate some of those issues in the results below, but the reader must be aware of the caveats. For example, in regard to important causality questions (such as how a desire for "more Europe" or "less Europe" might impact economic decisions, or whether cash availability affects revenue growth), we tested our results using instrumental variable techniques. In these techniques, another variable ('the instrument') is used to replace the independent variable in our regression in order to overcome concerns about the direction of causality. The instrumental variable must satisfy two conditions: first, it is not correlated with the outcome variable in the regression, which means that it has no direct impact on the outcome variable, and second, it is correlated with the independent variable.

Results have been found qualitatively robust for direction of causality. Thus, we report simple ordinary least square results in the following.

Key descriptive statistics about trends and Europe

Many of the basic descriptive statistics are outlined in our main document. For more information on the economic variables, please see Chapter 1. This section looks at relationships between global trends and perceptions of Europe, beyond our discussion in Chapter 2.

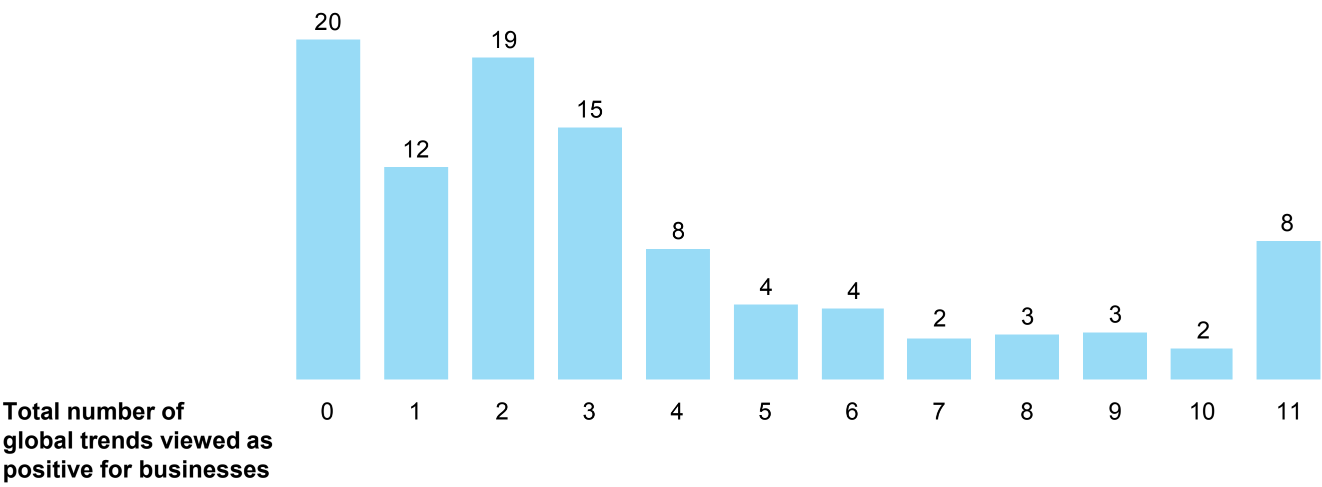
A. Global trends

Companies perceive many trends as risky to their business, as outlined in the main text. Exhibit A1 further describes the frequency distribution of the number of trends companies see as positive: only 16 percent of companies view more than eight trends as positive. On the 11 trends tested, the distribution is skewed towards zero to three positive trends, which implies that companies perceive more headwinds than tailwinds. Further, there is some significant response dependence among trends; for example, a negative reaction to one trend often implies a negative reaction to other trends. The largest dependencies found were between geopolitical disruption and the rise in populism (correlation coefficient = 0.69), pressures against globalisation and geopolitical disruption (0.63).

Exhibit A1

Businesses view global trends more as headwinds than tailwinds, according to survey results

Portion of EU respondents[1]
% of total



1 Total of all 6 EU country survey respondents across all sectors.
NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

B. Perceptions of Europe, past and future

Our survey asked respondents about their perceptions of Europe in the past (benefits received) and in the future (whether they wanted "more Europe" or "less Europe"). The essential finding is that Europe has been perceived as an enabler of businesses, which in turn want to continue with Europe (Exhibit A2).

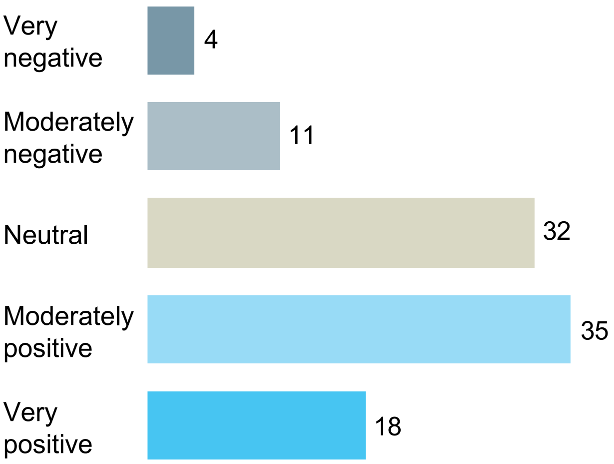
These two variables are highly correlated; perceived benefits from Europe in the past are statistically associated with wanting "more Europe" in the future (Pearson correlation coefficient = 0.37).

Exhibit A2

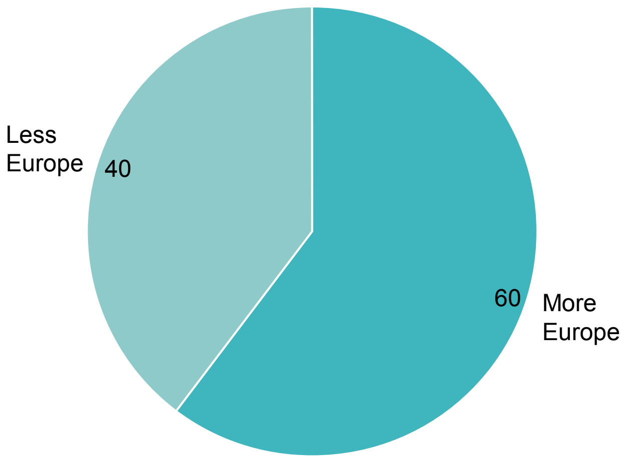
On average, EU respondents saw benefits from past EU membership and want "more Europe" going forward

Portion of EU respondents[1]
% of total

Perceived benefits of past EU membership



Preferences for "more Europe" or "less Europe"



1 Total of all 6 EU country survey respondents across all sectors.
NOTE: Numbers may not sum due to rounding.

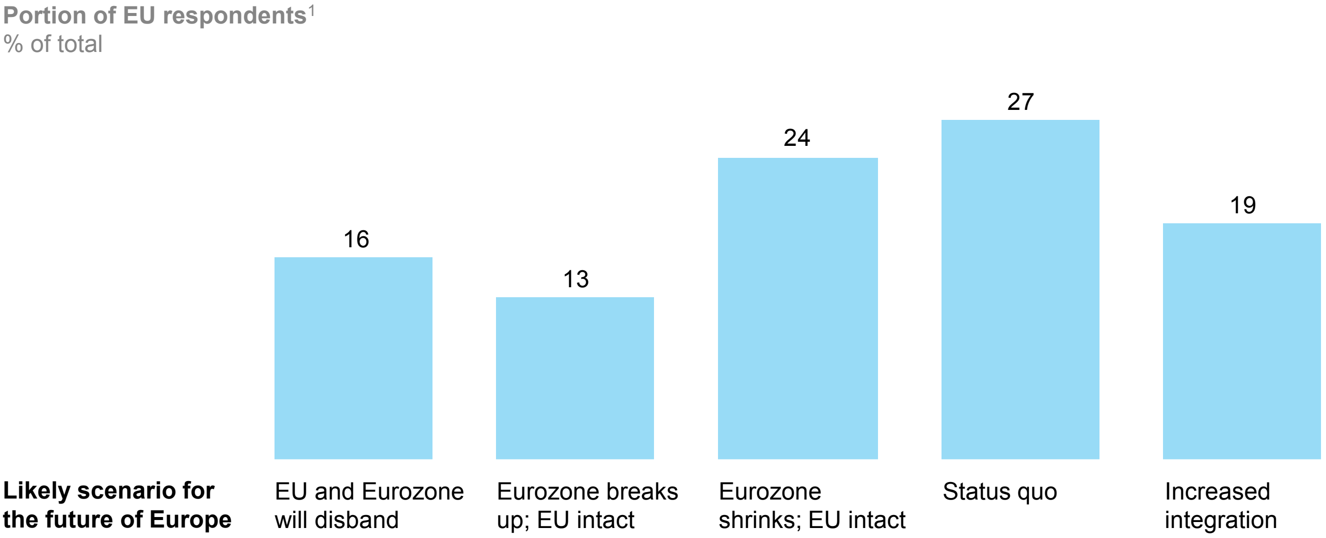
SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

C. Europe's evolution

Our survey also asked respondents about the most likely scenario they perceive for the future of Europe (Exhibit A3). The largest response, from 27 percent of respondents, was that they expect the status quo to continue. However, a large share of respondents believe European integration will reverse, thereby posing an additional risk to European companies, the majority of which want more rather than less Europe.

Exhibit A3

Forty-six percent of EU respondents believe that the EU and Eurozone will continue as is or experience further integration, while the majority expects disruptive change, especially to the Eurozone



1 Total of all 6 EU country survey respondents across all sectors.
NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

How global trends and Europe affect firm performance

An important point of our analyses is whether perceptions of trends (mostly negative) and of Europe (a desire for more, but a risk of reversal) carry any weight with company decisions and their performance. We find some clear links between views on Europe and global trends on the one hand and European business performance on the other. This suggests that it will be important for companies to manage against those trend headwinds in order to ensure greater performance in the future.

How important are trends, compared with typical business issues, in guiding a company's performance? Using a variance decomposition analysis, or classification in CHAID, of firm performance regarding both historical revenue growth and expected future investment growth, we find that firm performance is overwhelmingly driven by company assets and endowment and by feature factors, consistent with most economic literature.[9] These firm effects have been found to be about six to seven times more relevant than global trends, and two to five times more relevant than the European context, in explaining the difference in performance between firms (Exhibit A4).

[9] One strong contender in this line of work is the resource-based view of the firm, which states that organisations are intrinsically heterogeneous in regard to available resources, and that those differences do not disappear with time. For empirical evidence, see Jaime A. Roquebert, Robert L. Phillips, and Peter A. Westfall, "Market versus management: What drives profitability?" *Strategic Management Journal*, volume 17, number 8, 1996; and Edward H. Bowman and Constance E. Helfat, "Does corporate strategy matter?" *Strategic Management Journal*, volume 22, issue 1, 2001.

Exhibit A4

Economic variables provide more information about historic revenue and future investment than trends or the impact of Europe

	Average % influence of selected variables on companies across all sectors[1]			
	Economic variables[2]	Global trends	Past impact of Europe	Expected scenarios for Europe
Historic revenues	100	14	21	4
Expected Investment	100	16	48	0
Average (historic revenues and expected investment)	**100**	**15**	**34**	**2**

	Deep dive on impact of trends on historic revenue and expected investment	
	Total % of companies impacted by trends	% of total trend impact
Ageing	9	7
Digitisation	48	40
Rising inequality	38	31
Pressures against globalisation	25	21
Total trend impact	**121**	**100**

1 Defined as % of companies that are impacted by a variable within these groupings in CHAID analysis across all sector cuts.
2 Variables include historic cash flow position, historic revenue growth, future revenue growth, future employee growth, and future revenue productivity.
NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

However, whereas firm performance is mostly accounted by internal firm matters, global trends and Europe matter for the economic future. We discover that:

- Zooming in on Europe, the perceived benefits of Europe carry more influence on firm decisions—notably historical revenue as well as future investment growth—than the future scenarios for the EU. This suggests that the fear of Europe breaking into new scenarios has yet to cancel out the impact from past perceived benefits.

- Regarding global trends, perceptions of digitisation are the most informative for a company's historical revenue growth and future investment decisions. This is followed by perceptions about rising inequality and antiglobalisation pressures. Digitisation is perceived more positively than negatively by companies in our survey.

Exhibits A5 and A6 highlight the relationships between global and European trends on firm performance and decisions to invest.

In Exhibit A5, the first row, reporting expected growth in investment in manufacturing, shows that a 10 percent increase in positive perception of trends corresponds to investment growth of 0.1 percent. The median firm reports just above two trends as positive, while for the top 25 percent of firms, that number goes up to five trends, or 150 percent more. This implies that the top 25 percent of firms, in experiencing positive trends, will plan to grow investment 1.5 percent more, a relatively material boost to investment. We also note in manufacturing that there is a negative correlation between number of trends perceived as positive and employment.

Exhibit A5

Positivity towards global trends has a positive impact, particularly towards capital investment in the manufacturing sector

Example discussed in text

Dependent variable	Sector	Independent variables	Coefficient	Standard error	Standard coefficient	t-stat	Significance level
In (expected growth in investment)	Manufacturing	Positive trends: number of statements scoring 4 and 5	0	0	0.01	2.64	0.01
	Primary		0	0	0	2.48	0.01
In (expected growth in employment)	Manufacturing		-0.03	0.01	-0.14	-2.14	0.03
In (historic growth in cash flow position)	Manufacturing		0	0	-0.01	-2.33	0.02
	Primary		0	0	0	-2.43	0.02

SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

In Exhibit A6, we see a positive correlation between revenue growth in the manufacturing sector for those respondents who indicate more positive scenarios for the future of Europe (such as the scenario in which the status quo is maintained in the EU and the Eurozone). At the same time, we see a negative correlation between employment growth for companies anticipating the scenario in which both the EU and the Eurozone disband.

Exhibit A6

There is a correlation between optimism towards expected future scenarios for Europe and expected growth in certain economic variables

Dependent variable	Sector	Independent variables	Coefficient	Standard error	Standard coefficient	t-stat	Significance level
In (historical growth in revenue)	Manufac-turing	Scenario: status quo	0.11	0.07	0.10	1.57	0.12
In (expected growth in employment)		Scenario: EU and Eurozone disband	-0.32	0.12	-0.16	-2.68	0.01
In (expected growth in cash position)	Primary	Scenario: Eurozone breaks up; EU remains	-0.01	0	0	-2.32	0.02
In (expected growth in investment)			0	0	0	3.37	0

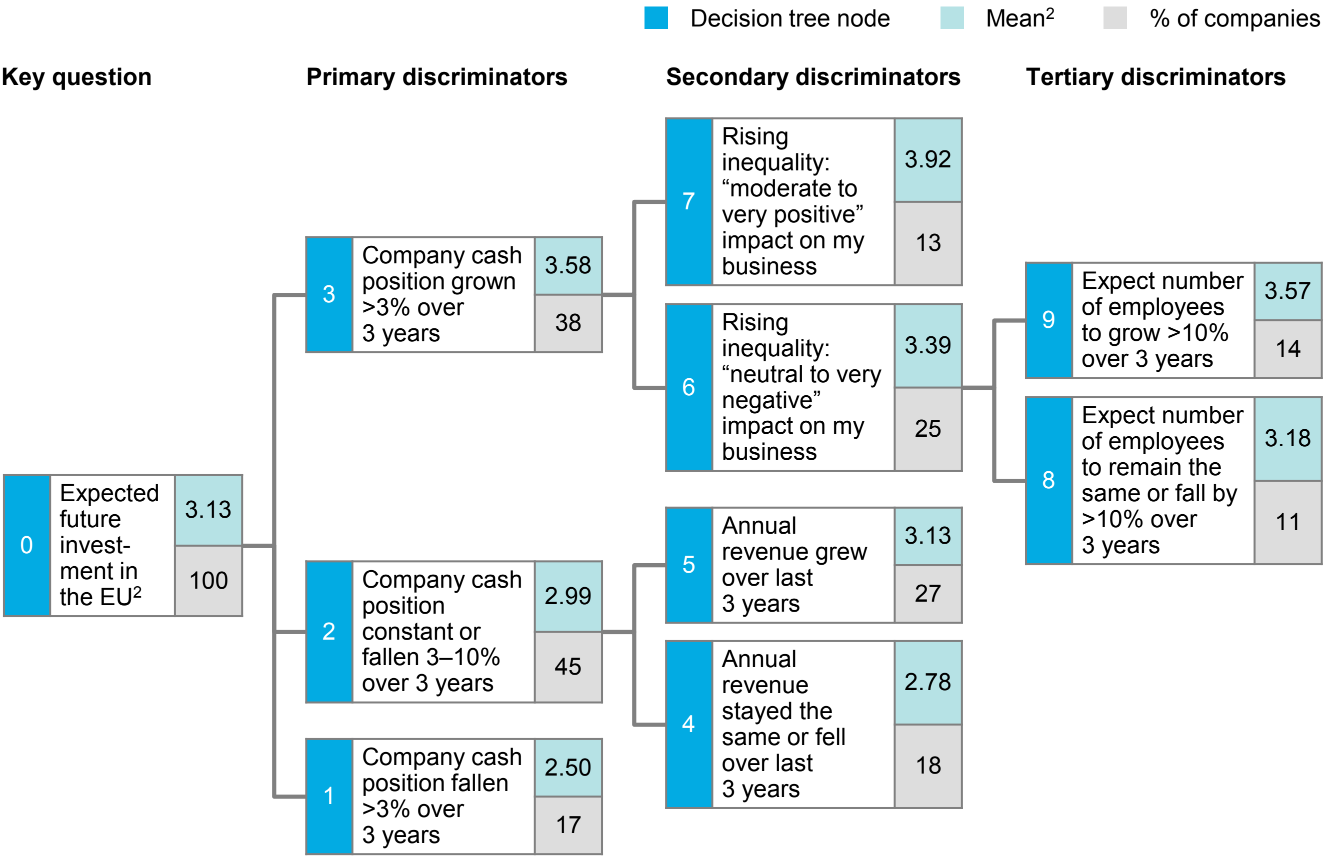
SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

In general, trends do not appear overly significant in the regression analysis, except for digitisation in the manufacturing and primary sectors. One reason is that trends may be playing in a focused, non-linear way on firm performance. We thus resorted to CHAID to show those non-linear relationships.

Reconsidering expected investment growth decisions in the manufacturing sector, the CHAID model reveals interesting interactions with trend perceptions. First, investment decisions in the manufacturing sector appear to be influenced by the risk of rising inequality emerging in Europe (see Exhibit A7). This risk affects only firms with a strongly growing historical cash flow position, or firms that are more willing to invest than the average (see nodes 6 and 7 of the CHAID tree). Firms perceiving that rising inequality is likely to have a neutral to very negative impact on their business are less likely to invest. This group of companies is large, representing 25 percent of manufacturing firms. Comparing nodes 6 and 7, firms not perceiving the risk of inequality plan to grow their investment rate by 16 percent more than others.[10] Eliminating this perception of risk would translate into 4 percent more investment growth as a whole.[11]

Exhibit A7

Decision tree based on CHAID analysis of future EU investment by manufacturing companies[1]



1 Chi-Squared Automatic Interaction Detector (CHAID) analysis determines which survey answers are most able to discriminate against selected dependent variables as a technique to uncover non-linear effects between companies' decisions and their perceptions of trends and of Europe.
2 Respondents were asked to define their expected change in annual investment over the next three years, compared to the previous year. Expected investment is on a scale of 1 to 5, as follows 1: Fall by >30%, 2: Fall by 10–30%, 3: Keep roughly constant, 4: Grow by 10–30%, 5: Grow by >30%.
3 Mean of responses to expected change in annual investment in the EU among our survey respondents. The mean will change in response to subsequent survey questions, indicating higher or lower expected future investment in the EU among our survey respondents.
NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

In general, perceptions about Europe and global trends tend to play non-linearly. Another example of this is how they affect expected investment growth within the service sector. As seen in the CHAID tree below (Exhibit A8), the perceived benefits of Europe improve willingness to invest, but at different levels. This primarily affects companies with strongly growing cash positions (nodes 8 and 9). There is also a smaller impact on companies whose cash position has remained roughly constant or fallen by 3 to 10 percent compared to three years ago, but which are expecting to increase employment (nodes 10 and 11).

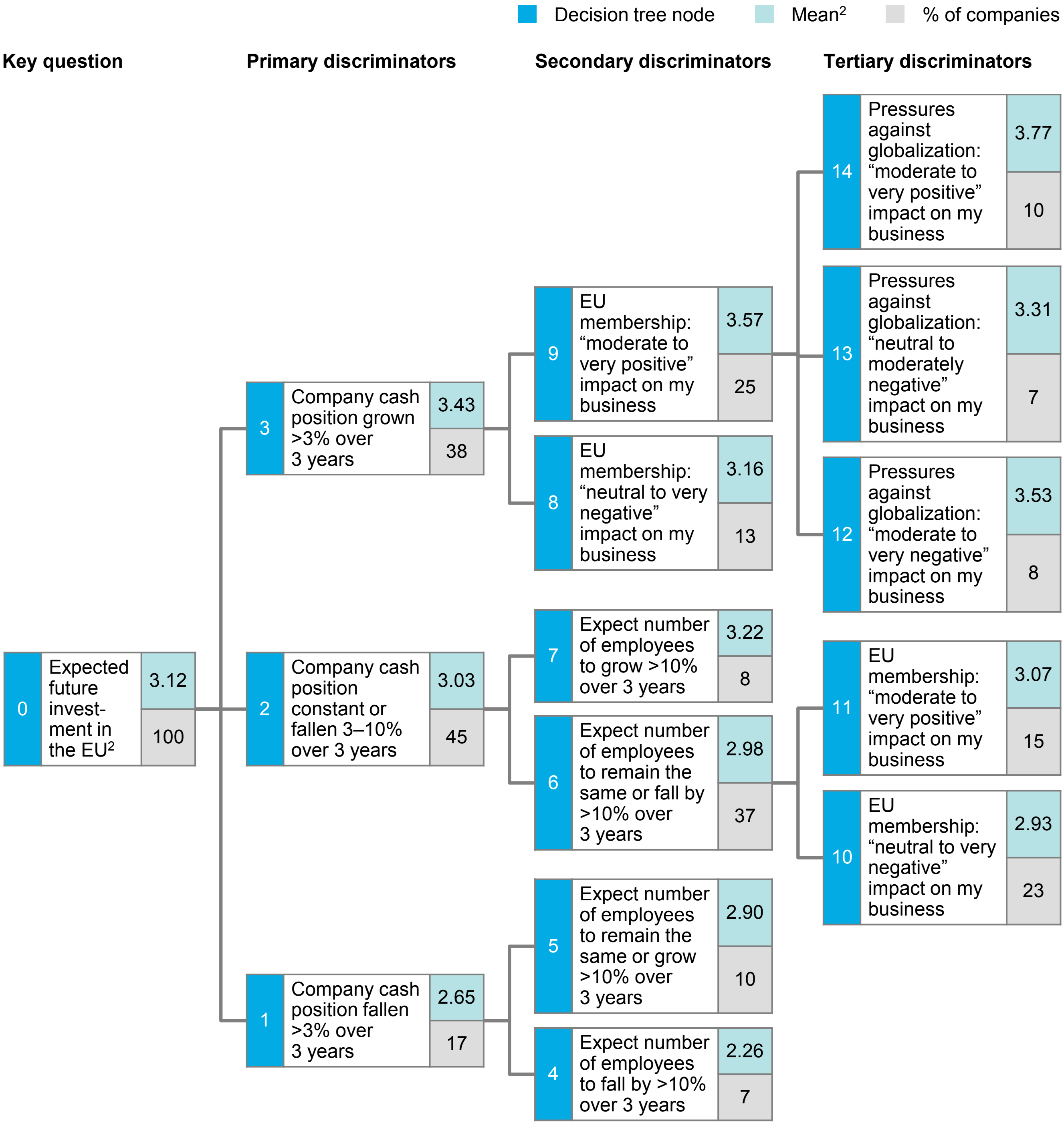
[10] This is (3.92-3.39)/3.39; see CHAID node box.

[11] This is (3.92-3.39) = 0.53 for 25 percent of total firms, or 0.13, to be compared to a total average of 3.1 in first node, or 0.13/3.1 = 4 percent.

In terms of trends, globalisation in particular can boost the service industry, but only for a small cluster of firms: those with increasing cash positions (after node 9). Overall, perceptions of Europe affect the investment decision of 75 percent of companies in the service industry, while globalisation affects the decisions of only 25 percent of firms.

Exhibit A8

Decision tree based on CHAID analysis of future EU investment by services companies[1]



1 Chi-Squared Automatic Interaction Detector (CHAID) analysis determines which survey answers are most able to discriminate against selected dependent variables as a technique to uncover non-linear effects between companies' decisions and their perceptions of trends and of Europe.
2 Respondents were asked to define their expected change in annual investment over the next three years, compared to the previous year. Expected investment is on a scale of 1 to 5, as follows 1: Fall by >30%, 2: Fall by 10–30%, 3: Keep roughly constant, 4: Grow by 10–30%, 5: Grow by >30%.
3 Mean of responses to expected change in annual investment in the EU among our survey respondents. The mean will change in response to subsequent survey questions, indicating higher or lower expected future investment in the EU among our survey respondents.
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SOURCE: McKinsey Global Institute Business Survey, 2017; McKinsey Global Institute analysis

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