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### NEWS RELEASE

EMBARGOED UNTIL RELEASE AT 9:00 A.M. ET, WEDNESDAY, DECEMBER 21, 2016.

## CFS DIVISIA MONETARY DATA FOR THE UNITED STATES:<sup>1</sup> NOVEMBER 2016

### The CFS Featured Broad Divisia Monetary Aggregates in November 2016

- CFS Divisia M4, including Treasuries (DM4) – the broadest and most important measure of money calculated by the Center for Financial Stability – grew by 5.4% in November 2016, on a year-over-year basis. In contrast, CFS Divisia M4 increased by 4.4% in November 2015 over the preceding year.
- The narrower version of the CFS Divisia M4, excluding Treasuries, (DM4-), increased by 4.1% in November 2016 over the year, relative to a year-over-year gain of 4.4% in November 2015.
- CFS Divisia M3 (DM3) advanced by 4.8% year-over-year, relative to an increase of 4.7% in November 2015.

### The Narrow Divisia Monetary Aggregates in November 2016<sup>2</sup>

- CFS Divisia M2 (DM2) advanced by 7.8% year-over-year, relative to an increase of 6.0% in November 2015 over the preceding year.
- CFS Divisia M1 (DM1) advanced by 9.5% year-over-year, relative to an increase of 6.8% in November 2015 over the preceding year.

### Most Significant Factors Influencing CFS Divisia M4 in November 2016

#### *Positive Contributors to CFS Divisia M4 Growth*

- The largest positive contributor to CFS Divisia M4 growth was commercial banks' savings deposits (sweeps adjusted), contributing an increase of 2.1% in the last 12 months ending November 2016. Their growth-rate weight was 32.6%. Unweighted, they increased 6.7% in the last 12 months. This component is included in all of the aggregates, except the narrowest (DM1).
- The second largest positive contributor to growth was T-bills, contributing an increase of 1.5% in the last 12 months ending November 2016. Their growth-rate weight was 7.0%. Unweighted, they increased 23.7% in the last 12 months. This component is included only in the broadest aggregate (DM4).
- The third largest positive contributor to growth was demand deposits (sweeps adjusted), contributing an increase of 1.3% in the last 12 months ending November 2016. Their growth-rate weight was 11.8%. Unweighted, they increased 11.9% in the last 12 months. This component is included in all of the aggregates.

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<sup>1</sup> The CFS Divisia indexes in this release were constructed under the direction of Professor William A. Barnett. Dr. Barnett is the originator of the Divisia monetary aggregates, which he has been developing and refining for decades, in accordance with modern advances in economic aggregation and index-number theory.

<sup>2</sup> The narrow aggregates, DM1 and DM2, are similar to the MSI (monetary services index) Divisia aggregates, supplied by the St. Louis Federal Reserve Bank. See page 13 for the relationship between the CFS and the MSI aggregates. The broad Divisia monetary aggregates, DM3, DM4-, and DM4, are available only from the CFS, since no other source currently exists for broad Divisia monetary aggregates for the US.

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### *Negative Contributors to CFS Divisia M4 Growth*

- The largest negative contributor to CFS Divisia M4 growth was large time deposits, contributing a decrease of 1.0% in the last 12 months ending November 2016. Their growth-rate weight was 8.0%. Unweighted, they decreased 12.0% in the last 12 months. This component is included in DM3, DM4-, and DM4, but not in the narrower aggregates (DM1 and DM2).
- The second largest negative contributor to CFS Divisia M4 growth was institutional money-market funds, contributing a decrease of 0.5% in the last 12 months ending November 2016. Their growth-rate weight was 9.2%. Unweighted, they decreased 5.5% in the last 12 months. This component is included in DM3, DM4-, and DM4, but not in the narrower aggregates (DM1 and DM2).
- The third largest negative contributor to CFS Divisia M4 growth was commercial paper, contributing a decrease of 0.4% in the last 12 months ending November 2016. Its growth-rate weight was 3.4%. Unweighted, it decreased 12.6% in the last 12 months. This component is included in DM4 and DM4-, but not in the narrower aggregates.

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The next CFS Divisia M4 data are scheduled to be released at 9:00 AM ET on Wednesday, January 18, 2017.

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Figure 1 - Recent Growth in Broad CFS Divisia Monetary Data<sup>3</sup>

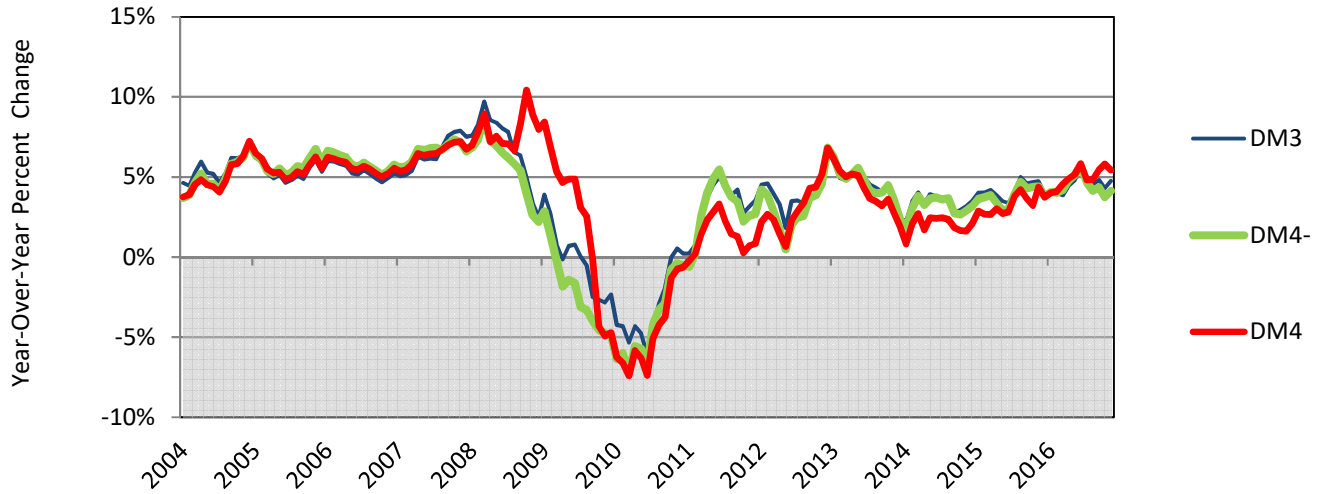
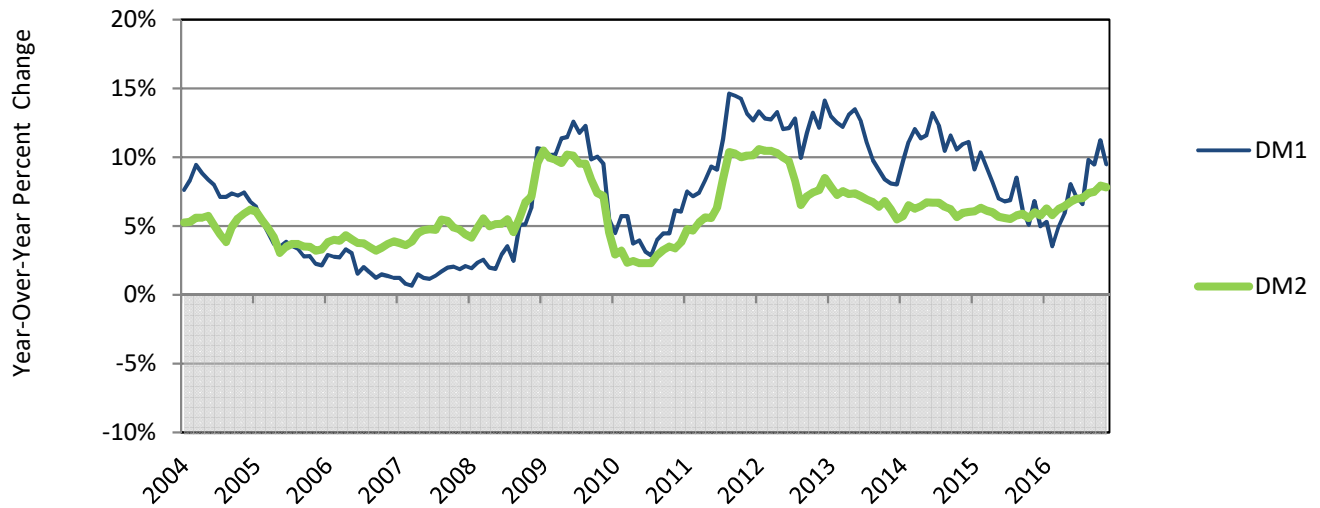


Figure 2 - Recent Growth in Narrow CFS Divisia Monetary Data<sup>4</sup>



<sup>3</sup> The broadest CFS Divisia monetary aggregates are **best** for most purposes. See p. 13 for background on the supporting research. We nevertheless provide the narrower CFS Divisia aggregates in Figure 2 for comparison.

<sup>4</sup> The narrow aggregates shown here, DM1 and DM2, are similar to the MSI (monetary services index) Divisia aggregates, supplied by the St. Louis Federal Reserve Bank. For more information about the St. Louis Fed's MSI Divisia aggregates and their relationship to the CFS Divisia monetary aggregates, see p. 13.



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**Figure 3 - CFS Divisia Monetary Aggregates Table, Year-Over-Year Percent Change**

Date	Divisia M4 Including Treasuries (DM4)	Divisia M4 Excluding Treasuries (DM4-)	Divisia M3	Divisia M2 (Sweeps Adjusted) <sup>5</sup>	Divisia M1 (Sweeps Adjusted) <sup>5</sup>
Feb-14	2.1%	3.0%	3.5%	6.5%	11.1%
Mar-14	2.7%	3.8%	4.0%	6.3%	12.1%
Apr-14	1.7%	3.3%	3.3%	6.4%	11.4%
May-14	2.5%	3.7%	3.9%	6.7%	11.6%
Jun-14	2.4%	3.7%	3.8%	6.7%	13.2%
Jul-14	2.5%	3.6%	3.6%	6.7%	12.3%
Aug-14	2.4%	3.7%	3.6%	6.4%	10.5%
Sep-14	1.8%	2.7%	2.8%	6.2%	11.6%
Oct-14	1.7%	2.7%	3.0%	5.7%	10.6%
Nov-14	1.6%	2.9%	3.2%	6.0%	11.0%
Dec-14	2.1%	3.2%	3.5%	6.0%	11.1%
Jan-15	2.9%	3.6%	4.0%	6.1%	9.1%
Feb-15	2.7%	3.7%	4.0%	6.3%	10.4%
Mar-15	2.7%	3.9%	4.2%	6.1%	9.2%
Apr-15	3.0%	3.4%	3.8%	6.0%	8.2%
May-15	2.7%	2.9%	3.5%	5.7%	7.0%
Jun-15	2.8%	3.0%	3.4%	5.6%	6.8%
Jul-15	3.8%	3.9%	4.1%	5.5%	6.9%
Aug-15	4.2%	4.7%	5.0%	5.8%	8.5%
Sep-15	3.7%	4.3%	4.6%	5.9%	6.2%
Oct-15	3.2%	4.4%	4.7%	5.6%	5.1%
Nov-15	4.4%	4.4%	4.7%	6.0%	6.8%
Dec-15	3.7%	3.8%	4.0%	5.8%	5.0%
Jan-16	4.0%	4.1%	4.0%	6.3%	5.3%
Feb-16	4.1%	4.0%	4.0%	5.8%	3.5%
Mar-16	4.6%	4.2%	3.9%	6.2%	4.9%
Apr-16	4.9%	4.8%	4.5%	6.4%	5.9%
May-16	5.2%	5.1%	4.8%	6.8%	8.0%
Jun-16	5.8%	5.7%	5.6%	7.0%	7.1%
Jul-16	4.8%	4.6%	5.0%	7.0%	6.6%
Aug-16	4.9%	4.1%	4.6%	7.4%	9.8%
Sep-16	5.5%	4.4%	4.8%	7.5%	9.5%
Oct-16	5.8%	3.7%	4.3%	7.9%	11.2%
Nov-16	5.4%	4.1%	4.8%	7.8%	9.5%

Note: Cells are shaded on a gradient from dark green (maximum) to dark red (minimum).

<sup>5</sup> While the broadest Divisia monetary aggregates are best for most purposes, we provide the narrower CFS Divisia aggregates for comparison. The narrow aggregates shown here, DM1 and DM2, are similar to the MSI (monetary services index) Divisia aggregates, supplied by the St. Louis Federal Reserve Bank. For more information about the St. Louis Fed's MSI Divisia aggregates and their relationship to the CFS Divisia monetary aggregates, see p. 13.



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**Figure 4 - CFS Divisia Data Table (DM4, DM4-, and DM3)**

Levels are normalized to equal 100 in Jan. 1967

Date	Divisia M4 Including Treasuries (DM4)		Divisia M4 Excluding Treasuries (DM4-)		Divisia M3	
	Level	Yr-Over-Yr % Growth Rate	Level	Yr-Over-Yr % Growth Rate	Level	Yr-Over-Yr % Growth Rate
Feb-14	1,283	2.1%	1,205	3.0%	1,197	3.5%
Mar-14	1,289	2.7%	1,211	3.8%	1,204	4.0%
Apr-14	1,283	1.7%	1,213	3.3%	1,205	3.3%
May-14	1,291	2.5%	1,220	3.7%	1,212	3.9%
Jun-14	1,292	2.4%	1,223	3.7%	1,215	3.8%
Jul-14	1,295	2.5%	1,224	3.6%	1,216	3.6%
Aug-14	1,297	2.4%	1,226	3.7%	1,218	3.6%
Sep-14	1,297	1.8%	1,226	2.7%	1,217	2.8%
Oct-14	1,300	1.7%	1,231	2.7%	1,222	3.0%
Nov-14	1,300	1.6%	1,234	2.9%	1,225	3.2%
Dec-14	1,310	2.1%	1,241	3.2%	1,235	3.5%
Jan-15	1,311	2.9%	1,242	3.6%	1,238	4.0%
Feb-15	1,317	2.7%	1,250	3.7%	1,245	4.0%
Mar-15	1,323	2.7%	1,258	3.9%	1,255	4.2%
Apr-15	1,322	3.0%	1,254	3.4%	1,252	3.8%
May-15	1,326	2.7%	1,256	2.9%	1,255	3.5%
Jun-15	1,329	2.8%	1,259	3.0%	1,256	3.4%
Jul-15	1,344	3.8%	1,272	3.9%	1,266	4.1%
Aug-15	1,352	4.2%	1,284	4.7%	1,279	5.0%
Sep-15	1,345	3.7%	1,279	4.3%	1,273	4.6%
Oct-15	1,342	3.2%	1,285	4.4%	1,279	4.7%
Nov-15	1,357	4.4%	1,288	4.4%	1,283	4.7%
Dec-15	1,359	3.7%	1,289	3.8%	1,284	4.0%
Jan-16	1,364	4.0%	1,293	4.1%	1,288	4.0%
Feb-16	1,371	4.1%	1,300	4.0%	1,295	4.0%
Mar-16	1,384	4.6%	1,311	4.2%	1,303	3.9%
Apr-16	1,387	4.9%	1,314	4.8%	1,308	4.5%
May-16	1,394	5.2%	1,321	5.1%	1,315	4.8%
Jun-16	1,406	5.8%	1,331	5.7%	1,326	5.6%
Jul-16	1,409	4.8%	1,331	4.6%	1,329	5.0%
Aug-16	1,418	4.9%	1,337	4.1%	1,337	4.6%
Sep-16	1,418	5.5%	1,334	4.4%	1,335	4.8%
Oct-16	1,420	5.8%	1,333	3.7%	1,334	4.3%
Nov-16	1,431	5.4%	1,341	4.1%	1,344	4.8%



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**Figure 5 - CFS Divisia Data Table (DM2 and DM1)**

Levels are normalized to equal 100 in Jan. 1967

Date	Divisia M2 (Sweeps Adjusted)		Divisia M1 (Sweeps Adjusted)	
	Level	Yr-Over-Yr % Growth Rate	Level	Yr-Over-Yr % Growth Rate
Feb-14	1,286	6.5%	1,827	11.1%
Mar-14	1,293	6.3%	1,849	12.1%
Apr-14	1,300	6.4%	1,866	11.4%
May-14	1,308	6.7%	1,880	11.6%
Jun-14	1,314	6.7%	1,902	13.2%
Jul-14	1,322	6.7%	1,910	12.3%
Aug-14	1,326	6.4%	1,884	10.5%
Sep-14	1,330	6.2%	1,934	11.6%
Oct-14	1,337	5.7%	1,937	10.6%
Nov-14	1,341	6.0%	1,943	11.0%
Dec-14	1,349	6.0%	1,975	11.1%
Jan-15	1,356	6.1%	1,974	9.1%
Feb-15	1,368	6.3%	2,017	10.4%
Mar-15	1,372	6.1%	2,019	9.2%
Apr-15	1,378	6.0%	2,019	8.2%
May-15	1,382	5.7%	2,012	7.0%
Jun-15	1,388	5.6%	2,032	6.8%
Jul-15	1,395	5.5%	2,042	6.9%
Aug-15	1,402	5.8%	2,045	8.5%
Sep-15	1,409	5.9%	2,053	6.2%
Oct-15	1,411	5.6%	2,036	5.1%
Nov-15	1,422	6.0%	2,075	6.8%
Dec-15	1,427	5.8%	2,073	5.0%
Jan-16	1,441	6.3%	2,079	5.3%
Feb-16	1,447	5.8%	2,088	3.5%
Mar-16	1,457	6.2%	2,118	4.9%
Apr-16	1,467	6.4%	2,138	5.9%
May-16	1,476	6.8%	2,174	8.0%
Jun-16	1,484	7.0%	2,176	7.1%
Jul-16	1,493	7.0%	2,176	6.6%
Aug-16	1,506	7.4%	2,245	9.8%
Sep-16	1,515	7.5%	2,248	9.5%
Oct-16	1,523	7.9%	2,264	11.2%
Nov-16	1,533	7.8%	2,272	9.5%



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**Figure 6 - Components of CFS Divisia M4 - Highlights for November 2016**

Components in this table build from the narrowest aggregate at the top to the broadest at the bottom. For example, the darkest green in the left column includes components of DM1. The next tier shows the components included in DM2, but not within DM1.

	Weighted Contribution To DM4 Money Annual Growth Rate*	Divisia Growth-Rate Weights (Average of Last 12 Months)	Unweighted Year-Over-Year Percentage Growth Rate
<b>DM1</b>			
Currency	0.4%	7.4%	6.1%
Traveler's Checks	0.0%	0.0%	-12.0%
Demand Deposits **	1.3%	11.8%	11.9%
OCDs at Commercial Banks **	0.2%	2.6%	6.7%
OCDs at Thrift Institutions **	0.2%	2.1%	11.7%
<b>Added into DM2</b>			
Savings Deposits at Commercial Banks **	2.1%	32.6%	6.7%
Savings Deposits at Thrift Institutions **	0.5%	4.9%	10.2%
Retail Money-Market Funds	0.5%	3.6%	14.0%
Small Time Deposits at Commercial Banks	-0.2%	1.5%	-11.9%
Small Time Deposits at Thrifts	0.0%	0.5%	-2.9%
<b>Added into DM3</b>			
Institutional Money-Market Funds	-0.5%	9.2%	-5.5%
Large Time Deposits	-1.0%	8.0%	-12.0%
Repurchase Agreements	0.6%	5.4%	12.1%
<b>Added into DM4-</b>			
Commercial Paper	-0.4%	3.4%	-12.6%
<b>Added into DM4</b>			
T-Bills	1.5%	7.0%	23.7%

Note: The row labels in the first column are shaded to show which components are included into which aggregates. Each data column is shaded on a gradient from dark green (maximum) to dark red (minimum). See the figures 10-15 for these calculations over time and a chart version of the above table.

\* Average of last 12 monthly weighted contributions to CFS Divisia M4 growth rates (annual rates). Unlike the other percent calculations in this report, the weighted contributions use continuous percent changes computed from natural logs.

\*\* Sweeps adjusted.

### Components That Are Pulling CFS Divisia M4 Up

The largest positive contributor to CFS Divisia M4 growth was commercial banks' savings deposits (sweeps adjusted), contributing an increase of 2.1% in the last 12 months ending November 2016. Their growth-rate weight was 32.6%. Unweighted, they increased 6.7% in the last 12 months. This component is included in all of the aggregates, except the narrowest (DM1).

The second largest positive contributor to growth was T-bills, contributing an increase of 1.5% in the last 12 months ending November 2016. Their growth-rate weight was 7.0%. Unweighted, they increased 23.7% in the last 12 months. This component is included only in the broadest aggregate (DM4).

The third largest positive contributor to growth was demand deposits (sweeps adjusted), contributing an increase of 1.3% in the last 12 months ending November 2016. Their growth-rate weight was 11.8%. Unweighted, they increased 11.9% in the last 12 months. This component is included in all of the aggregates.

### Components That Are Pulling CFS Divisia M4 Down

The largest negative contributor to CFS Divisia M4 growth was large time deposits, contributing a decrease of 1.0% in the last 12 months ending November 2016. Their growth-rate weight was 8.0%. Unweighted, they decreased 12.0% in the last 12 months. This component is included in DM3, DM4-, and DM4, but not in the narrower aggregates (DM1 and DM2).

The second largest negative contributor to CFS Divisia M4 growth was institutional money-market funds, contributing a decrease of 0.5% in the last 12 months ending November 2016. Their growth-rate weight was 9.2%. Unweighted, they decreased 5.5% in the last 12 months. This component is included in DM3, DM4-, and DM4, but not in the narrower aggregates (DM1 and DM2).

The third largest negative contributor to CFS Divisia M4 growth was commercial paper, contributing a decrease of 0.4% in the last 12 months ending November 2016. Its growth-rate weight was 3.4%. Unweighted, it decreased 12.6% in the last 12 months. This component is included in DM4 and DM4-, but not in the narrower aggregates.



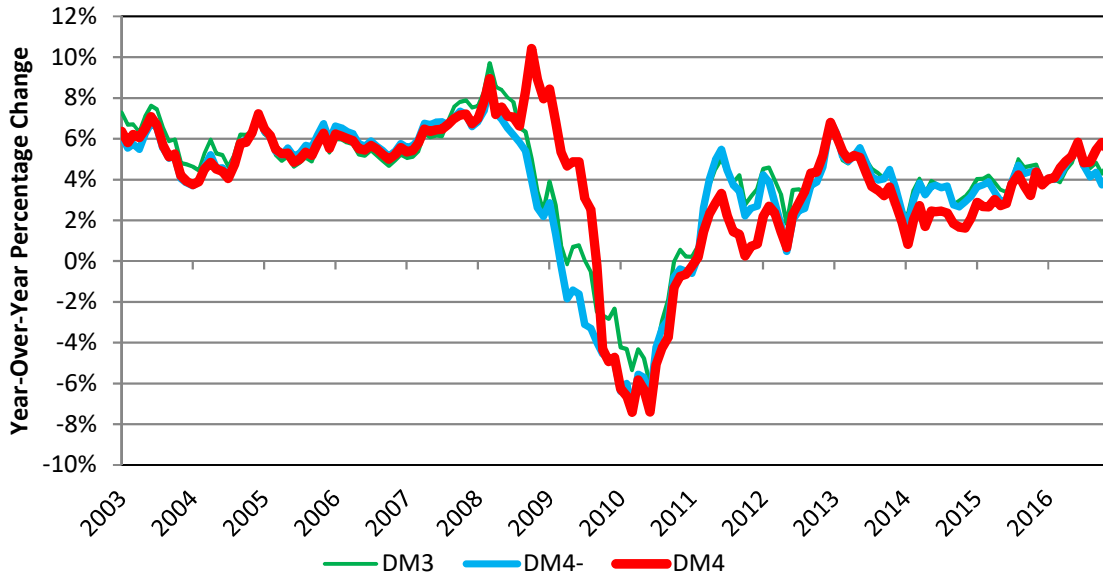
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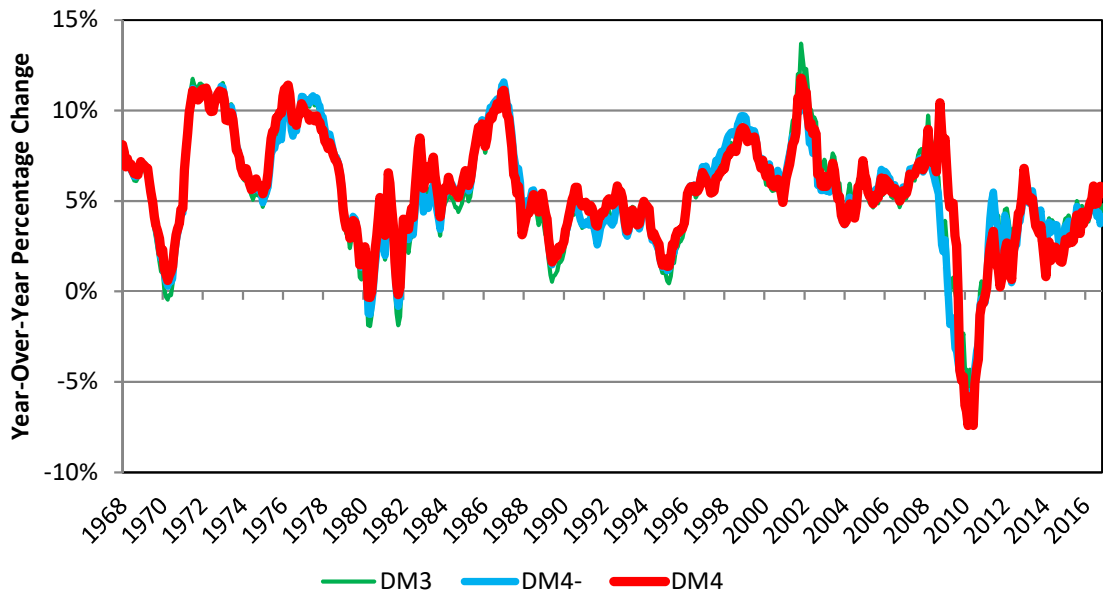
### Figure 7 - CFS Divisia Monetary Growth Charts

DM3, DM4-, and DM4 Year-Over-Year Percent Change, Two Date Horizons

#### 2003 to Present



#### 1968 to Present







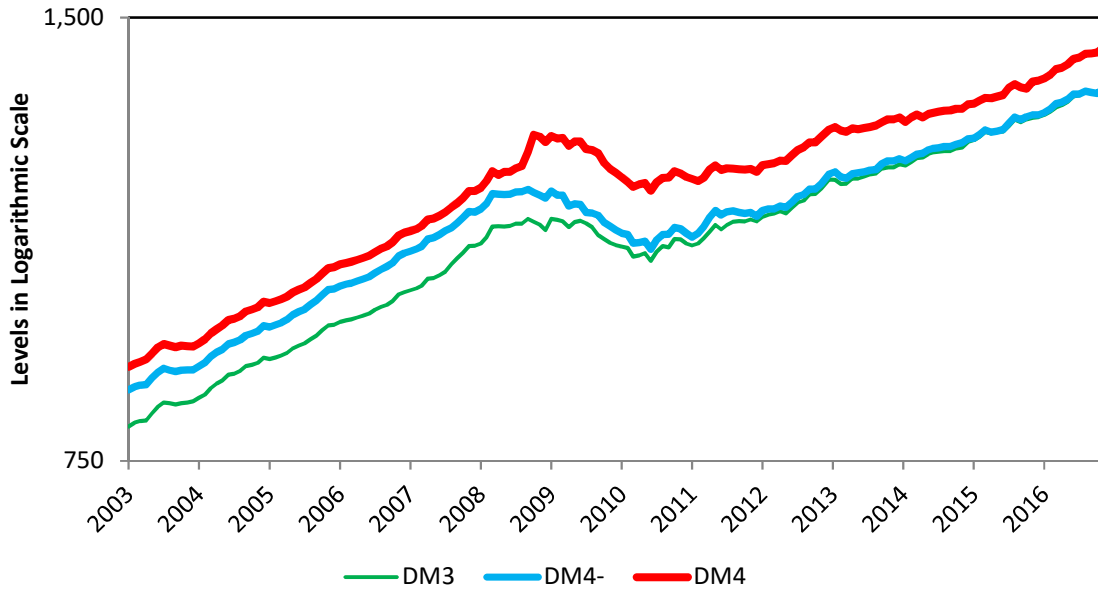
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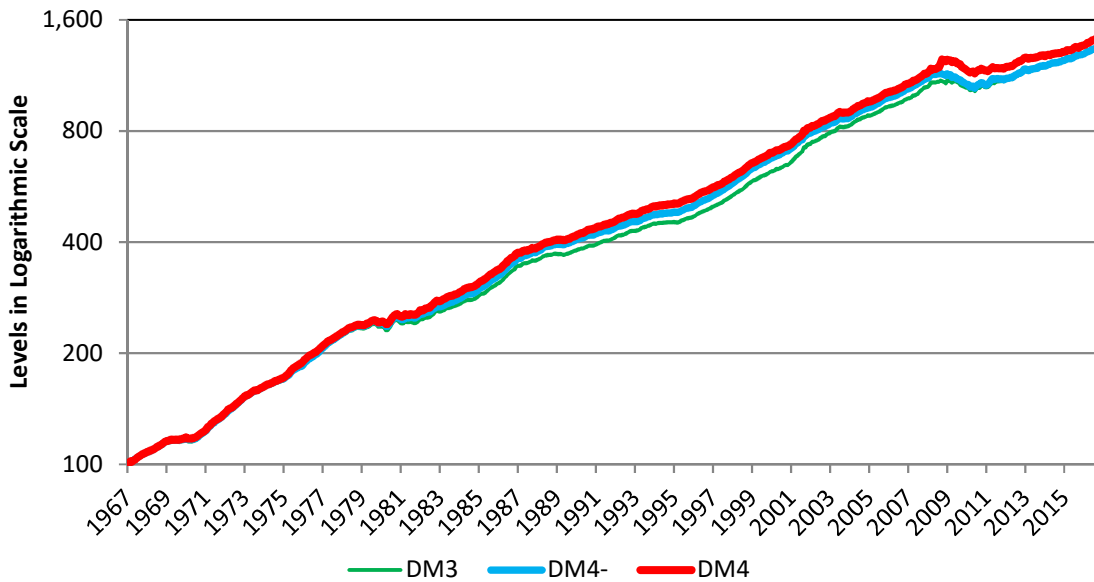
## Figure 8 - CFS Divisia Monetary Aggregates Level Charts

DM3, DM4-, and DM4 Levels, Normalized to Equal 100 in Jan. 1967, Logarithmic Scales

### 2003 to Present



### 1967 to Present





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**Figure 9 - Components of All CFS Divisia Aggregates  
Growth-Rate Weights Used in Latest Month (November 2016)**

	Divisia M1	Divisia M2M	Divisia M2M	Divisia M2	Divisia ALL	Divisia M3	Divisia M4-	Divisia M4
Currency	30.5%	11.3%	10.1%	11.0%	9.8%	8.4%	8.2%	7.6%
Traveler's Checks	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Demand Deposits (Sweeps Adjusted)	50.1%	18.7%	16.5%	18.2%	16.1%	13.9%	13.5%	12.5%
OCDs at Commercial Banks (Sweeps Adjusted)	10.7%	4.0%	3.5%	3.9%	3.4%	2.9%	2.9%	2.7%
OCDs at Thrift Institutions (Sweeps Adjusted)	8.7%	3.2%	2.9%	3.2%	2.8%	2.4%	2.3%	2.2%
Savings Deposits at Commercial Banks (Sweeps Adjusted)		50.2%	44.5%	48.8%	43.4%	37.3%	36.2%	33.6%
Savings Deposits at Thrift Institutions (Sweeps Adjusted)		7.5%	6.6%	7.3%	6.5%	5.6%	5.4%	5.0%
Retail Money-Market Funds		5.1%	4.5%	5.0%	4.4%	3.8%	3.7%	3.4%
Small Time Deposits at Commercial Banks				2.0%	1.8%	1.5%	1.5%	1.4%
Small Time Deposits at Thrifts				0.7%	0.6%	0.5%	0.5%	0.5%
Institutional Money-Market Funds			11.4%		11.1%	9.5%	9.3%	8.6%
Large Time Deposits						8.0%	7.8%	7.3%
Repurchase Agreements						6.1%	5.9%	5.5%
Commercial Paper							2.8%	2.6%
T-Bills								7.2%
Sum of Weights	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

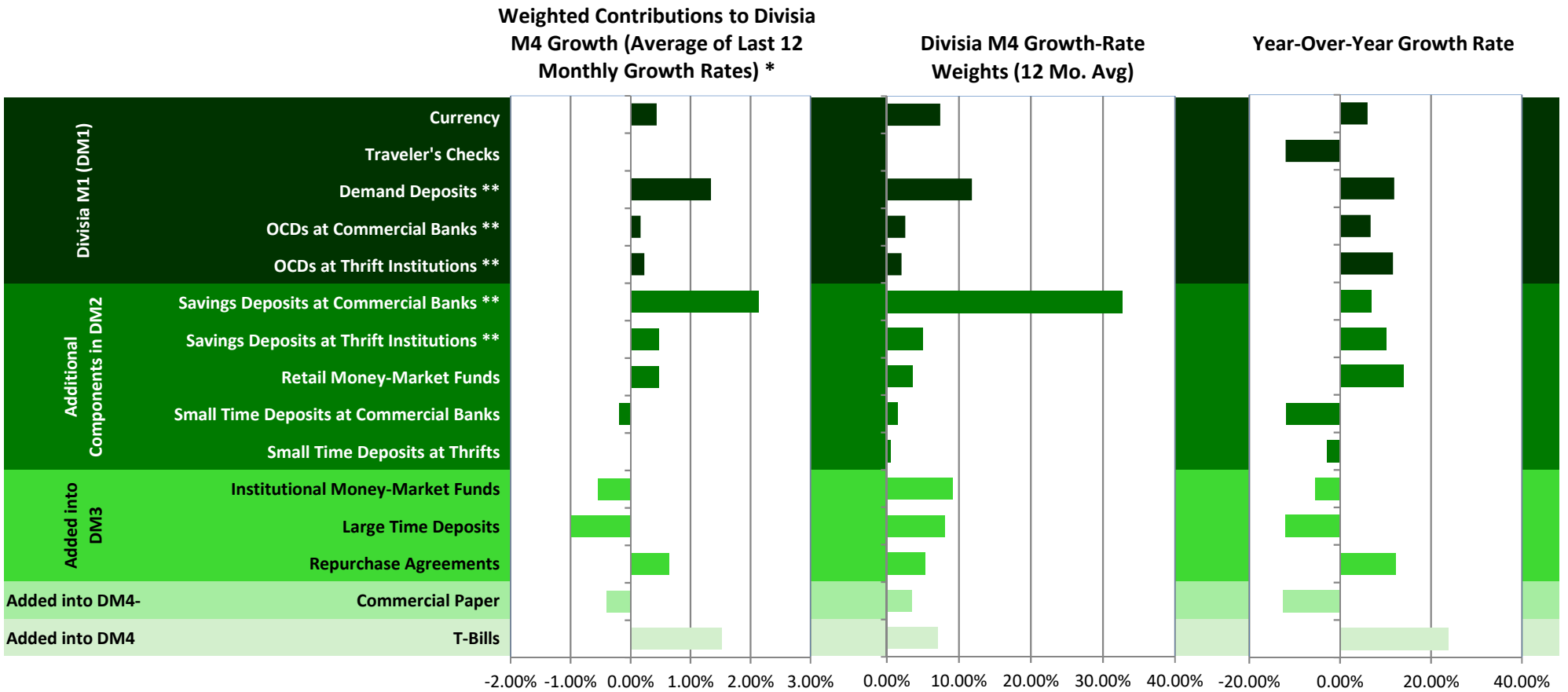
\* Sweeps adjusted.



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**Figure 10 - Components of CFS Divisia M4 - Highlights for November 2016**

Note: Each component's influence on DM4 growth (left chart column) reflects the component's unweighted growth (right chart column) and its growth-rate weight (middle chart column). The background and the bar colors are shaded to show which components are included in which aggregates. The lighter the green, the broader the aggregate.



\* Average of last 12 monthly weighted contributions to CFS Divisia M4 growth rates (annual rates). Unlike the other percent calculations in this report, the weighted contributions use continuous percent changes computed from natural logs e.g.  $(\ln(x) - \ln(x-1))$ .

\*\* Sweeps adjusted.



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**Figure 11 - CFS Divisia M4 Quarterly Growth Triangle**

Recent Quarterly History (Compound Annual Rates of Change)

This triangular report design was originated by Federal Reserve Bank of St. Louis to show seasonally adjusted annualized growth rates for a variety of time periods.

Terminal Period	Initial Period																			
	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	
Q1 2012	3.9																			1,193.13
Q2 2012	3.6	3.2																		1,202.62
Q3 2012	5.0	5.6	8.0																	1,226.10
Q4 2012	5.5	6.0	7.4	6.7																1,246.22
Q1 2013	5.2	5.5	6.3	5.4	4.1															1,258.71
Q2 2013	4.4	4.5	4.9	3.8	2.4	0.8														1,261.18
Q3 2013	4.1	4.2	4.3	3.4	2.4	1.5	2.3													1,268.35
Q4 2013	4.1	4.1	4.3	3.5	2.8	2.3	3.1	3.9												1,280.62
Q1 2014	3.7	3.7	3.7	3.0	2.3	1.9	2.2	2.2	0.5											1,282.19
Q2 2014	3.5	3.5	3.5	2.9	2.3	1.9	2.2	2.2	1.3	2.1										1,288.83
Q3 2014	3.4	3.4	3.4	2.8	2.3	2.0	2.2	2.2	1.7	2.2	2.4									1,296.46
Q4 2014	3.3	3.3	3.3	2.8	2.3	2.0	2.2	2.2	1.8	2.2	2.3	2.2								1,303.64
Q1 2015	3.4	3.4	3.4	2.9	2.5	2.3	2.5	2.6	2.3	2.7	3.0	3.2	4.3							1,317.28
Q2 2015	3.3	3.3	3.3	2.9	2.5	2.3	2.5	2.6	2.3	2.7	2.9	3.0	3.4	2.6						1,325.65
Q3 2015	3.6	3.5	3.5	3.2	2.9	2.7	3.0	3.1	2.9	3.3	3.6	3.9	4.5	4.6	6.6					1,346.98
Q4 2015	3.4	3.4	3.4	3.1	2.8	2.7	2.8	2.9	2.8	3.1	3.3	3.5	3.8	3.6	4.1	1.7				1,352.83
Q1 2016	3.6	3.6	3.6	3.3	3.0	2.9	3.1	3.2	3.1	3.5	3.7	3.9	4.2	4.2	4.8	3.9	6.1			1,372.93
Q2 2016	3.8	3.8	3.8	3.5	3.3	3.2	3.4	3.5	3.5	3.8	4.1	4.3	4.7	4.7	5.3	4.9	6.5	6.8		1,395.82
Q3 2016	3.9	3.9	3.9	3.6	3.4	3.4	3.6	3.7	3.7	4.0	4.2	4.5	4.8	4.9	5.4	5.0	6.2	6.2	5.6	1,414.89

**How to Read this Table:**

To find a growth rate for a particular date range, find the column that contains the start quarter; then find the row that contains the end quarter of the date range. The cell where they intersect represents the annualized growth rate for that time period. For example, the last row contains the growth rates ending in the most recent quarter for each starting quarter going back 4 3/4 years. The outer diagonal shows the growth rates that are the quarter-over-quarter rates for the last few years. Red and green shades highlight the largest negative and positive growth rates.

**Quarterly Data Highlights:**

- In the last quarter, CFS Divisia M4 grew by 5.6% (seasonally adjusted annual rate).
- In the last year, CFS Divisia M4 grew by 5.0% (seasonally adjusted annual rate).
- In the last 2 years, CFS Divisia M4 grew by 4.5% (seasonally adjusted annual rate).
- In the last 3 years, CFS Divisia M4 grew by 3.7% (seasonally adjusted annual rate).
- In the last 4 years, CFS Divisia M4 grew by 3.6% (seasonally adjusted annual rate).



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### **Introduction to CFS Divisia Monetary Aggregates**

Conventional money-supply measures are not adjusted to account for differences in the degree to which various assets actually serve as money, and hence implicitly assume that all assets in the aggregates contribute equally to the economy's monetary services. This assumption has not been reasonable since monetary assets began yielding interest over a half century ago. Divisia measures, using a mathematical formula derived by the famous 20th-century French economist, Francois Divisia, are a weighted aggregate, providing a more accurate picture of what is really happening to the economy's monetary service flow. The growth-rate weights for each component asset are based on their expenditure shares, with expenditures within the shares evaluated with user-cost pricing. The user-cost prices measure the interest foregone by owning the asset in question, instead of the higher, expected, benchmark rate, defined to be the rate of return on pure investment capital, providing no monetary services.

When their components are properly weighted, the broadest monetary aggregates (DM3, DM4-, and DM4) are almost always the best monetary aggregates, with DM4 commonly being the most useful of the three. As a result, this report focuses on the broadest, CFS Divisia aggregate (DM4). See W. A. Barnett, "The Optimal Level of Monetary Aggregation," *Journal of Money, Credit, and Banking*, November 1982.<sup>6</sup> But we nevertheless provide the narrower CFS Divisia aggregates for comparison.

The CFS Divisia indexes in this release were developed by Professor William A. Barnett, based on his decades of work studying and refining Divisia measures of money supply, in accordance with the latest advances in economic measurement, modern economic aggregation theory, and state-of-the-art economic index-number theory. The Divisia formula for aggregating over imperfect substitutes was adapted for monetary and financial aggregation by W. A. Barnett in his seminal paper, "Economic Monetary Aggregates: An Application of Index Number and Aggregation Theory," *Journal of Econometrics*, September 1980, pp. 6-10.<sup>7</sup> For more information about the history and methodology in this large literature, see <http://www.centerforfinancialstability.org/amfm.php>.

We consider the St. Louis Fed's MSI (monetary services index) Divisia aggregates to be an admirable and important contribution to public information, and we are indebted to the St. Louis Fed for helping us develop our Divisia monetary aggregates. Our narrowest Divisia monetary aggregates are similar to the St. Louis Fed's MSI Divisia aggregates, which are available only as narrow aggregates. However, we use a different benchmark interest-rate assumption, based on the recently introduced Bank of Israel formula. Since the Divisia quantity-index formula is relatively robust to the benchmark rate,

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<sup>6</sup> Reprinted in W. A. Barnett and A. Serletis, *The Theory of Monetary Aggregation*, Elsevier, 2000, chapter 7, pp. 125-149. Also see W. A. Barnett, *Getting It Wrong: How Faulty Monetary Statistics Undermine the Fed, the Financial System, and the Economy*, MIT Press, 2012, section 4.4, pp. 143-144.

<sup>7</sup> Reprinted in W. A. Barnett and A. Serletis, *The Theory of Monetary Aggregation*, chapter 2, pp. 11-48. Also see W. A. Barnett, *Getting It Wrong: How Faulty Monetary Statistics Undermine the Fed, the Financial System, and the Economy*, appendix A, pp. 159-215.



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the CFS narrow Divisia quantity indexes can be expected usually to behave similarly to the St. Louis Fed's MSI Divisia aggregates; but the CFS and St. Louis Fed's corresponding user-cost price aggregates behave very differently. For more information about the St. Louis Fed's MSI, see

<http://research.stlouisfed.org/msi/> and <http://research.stlouisfed.org/fred2/release?rid=62&soid=4>.

The broad Divisia monetary aggregates, DM3, DM4-, and DM4, are available only from the CFS, since no other source currently exists for broad Divisia monetary aggregates for the US.

### **CFS Divisia Resources on the Center for Financial Stability Site**

See [www.centerforfinancialstability.org/amfm.php](http://www.centerforfinancialstability.org/amfm.php) for more information about the following topics:

- Introduction to Advances in Monetary and Financial Measurement (Divisia)
- Monetary Data for the US: including methodology, data sources, and key takeaway points
- International Advances in Monetary and Financial Measurement: Divisia and Fisher-ideal monetary aggregates for a vast number of countries throughout the world
- Library: Key articles and books regarding advances in monetary and financial measurement

### **About the Center for Financial Stability**

The Center for Financial Stability is an independent, nonpartisan, and nonprofit think tank dedicated to financial markets for the benefit of investors, officials, and the public.

CFS balances the big picture and financial market mechanics; serves as a private sector check on government actions; integrates finance, law, and economics; and supplements research with a community of public officials, academics, and market participants.

The organization's website is [www.centerforfinancialstability.org](http://www.centerforfinancialstability.org).

### **For more information about CFS Divisia please contact:**

William A. Barnett	(Methodology)	(212) 626-2660	<a href="mailto:wbarnett@the-cfs.org">wbarnett@the-cfs.org</a>
Lawrence Goodman	(Application)	(212) 626-2660	<a href="mailto:lgoodman@the-cfs.org">lgoodman@the-cfs.org</a>

CFS Divisia Team: Ryan Mattson (Research Associate), Jeff van den Noort (Chief Technology Officer), and Lauren Cooper (Manager of Communications).

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